REPORT

FROM THE

SELECT COMMITTEE

ON

POST OFFICE COMMUNICATION WITH IRELAND;

TOGETHER WITH THE

MINUTES OF EVIDENCE,

APPENDIX AND INDEX.

Ordered, by The House of Commons, *to be Printed,*
27 *June* 1842.

373.

Mercurii, 23° die Martii, 1842.

Ordered, THAT a Select Committee be appointed to inquire into the Post Office Communication between Great Britain and Ireland.

Martis, 12° die Aprilis, 1842.

A Committee was nominated of—

Viscount Ingestre.
Mr. Philip Miles.
Mr. Reade.
Mr. Owen Stanley.
Sir Denham Norreys.
Sir Robert Ferguson.
Viscount Emlyn.
Mr. John Henry Vivian.
Mr. Octavius Morgan.
Mr. William Johnson.
Captain Dalrymple.
Mr. Shaw.
Mr. Corry.
Captain Berkeley.
Mr. Murphy.

Ordered, THAT the Committee have power to send for Persons, Papers, and Records.

Ordered, THAT Five be the Quorum of the Committee.

Mercurii, 13° die Aprilis, 1842.

Ordered, THAT Mr. Grogan and Mr. Irving be added to the Committee.

Veneris, 20° die Maii, 1842.

Ordered, THAT Viscount Newry be added to the Committee.

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R E P O R T.

THE SELECT COMMITTEE appointed to inquire into the POST OFFICE COMMUNICATION between *Great Britain* and *Ireland*, and to whom the several Petitions on the subject were referred; —— HAVE considered the Matters referred to them, and have agreed upon the following REPORT:

YOUR COMMITTEE have been principally engaged in inquiring into the Communication between the Southern parts of this country and Ireland.

They have not, however, been unmindful of the paramount importance of the direct line of Post-office Communication between London and Dublin.

They considered that the principles applicable to the improvement of that line were easily to be gathered from materials already existing:—and, that there were some points of detail, for the adjustment of which a local investigation would be more satisfactory than a protracted examination of *vivâ voce* Witnesses. They have examined a few Witnesses, whose Evidence will be found in the Appendix, touching this branch of the inquiry, and in reference to it, Your Committee beg to submit the following observations.

Your Committee entirely concur in the doctrine which, since the Act of Union between Great Britain and Ireland, has been constantly recognized by the Imperial Legislature, and put forth by former Committees of Your House, namely, that any expenditure which may be necessary for affording the utmost facility of intercourse between these countries is to be regarded rather as an outlay of money for national purposes than for the advantage of any particular department of the Public Service.

Your Committee are of opinion, looking to London and Dublin as eventually the two great centres of Railway Communication for each country respectively, that connecting them by the most rapid and certain mode of transit would confer a great national benefit, not only justifying any expenditure that might be requisite for the purpose, but, ultimately, should a general system of Railways prevail in both countries, that then, by concentrating the leading lines of Post-office Communication, such a central line as is here suggested would also prove a measure of sound economy.

Large sums of Public Money have already been expended, and as Your Committee conceive justly and wisely, in improving the Roads and Harbours forming the Central Line of Communication between London and Dublin; but since the introduction of Railways, the application of a power unknown at that time has rendered such further improvements practicable as could not then have been even contemplated.

The considerations which the Committee would principally urge upon this point, are, that as the speed by steam on railroad is about threefold greater than can be attained on water, that line should be adopted which would ensure the shortest sea, and the most direct land route which the localities admit of; and that a Packet-station should be constructed of capacity to accommodate a class

class of Steam-vessels sufficiently large to ensure the greatest degree of expedition and certainty which is attainable in making the sea voyage at all seasons of the year.

By the adoption of such means, and at no great comparative cost, the Committee believe that the entire journey between London and Dublin may be accomplished under 17 hours; thus saving not only six hours each way, as compared with the present route by Liverpool, but the saving effected would be of hours the most valuable to all parties concerned, delivering the English letters in Dublin about mid-day, instead of late in the evening, and allowing of a return post to London which would deliver the answers on the morning next but one after the evening on which the letters had been despatched, at the usual hour from the London Post-Office; and, as regards the internal Post-office Communication of Ireland, the earlier arrival of the English Mails in Dublin would render their despatch every evening by the Irish Mail Coaches almost a matter of certainty, whereas at present it appears, from a return made to The House on the 6th April 1842, that from the 1st January 1841 to the 28th February 1842, inclusive, the number of days on which the evening Mail Coaches left Dublin without the London Mail was 102.

With respect to the present route by the London and Birmingham, and Grand Junction Railways, Liverpool and Kingstown, the balance of advantage will probably remain in its favour, as the main line of communication between London and Dublin, until a Railway shall be completed to some Port in North Wales. But under any circumstances, the route by Liverpool cannot be considered desirable as the permanent line of such communication, first, because of the length of the passage between Liverpool and Kingstown: and further, the Port of Liverpool is inconvenient and unsafe as a Packet-station, in consequence of the want of sufficient depth of water to cross the bar at all periods of the tide, or to approach the Pier so that the Packet can lie alongside more than once in 12 times on the average—of the difficulties of navigation in the River Mersey—and a bay having banks ranging and dangers extending 25 miles off the actual orifice of the River, as will more fully appear by reference to the Evidence taken on this subject by the Committee, and particularly that of Commander Denham.

Your Committee would recommend as the most practicable plan the extension of the Railway, which is now complete to Chester, to whatever may be the best Port on the coast of North Wales. Two Ports have been mentioned by the Witnesses examined before the Committee, Holyhead and Port Dynllaen. Your Committee have not inquired into their relative capabilities, but as materially bearing upon this question, they would refer to the following Documents, which are either now published, or will be in the Appendix to this Report:—

The Report of Captain Beaufort, R. N., presented to The House on the 14th March 1839.

The Reports of Lieutenant Sheringham, R. N., on the Harbours of Holyhead and Port Dynllaen, bearing date the 14th March and the 7th May 1838, in pursuance of the Report of the Select Committee appointed by The House to inquire into the existing Communication between London and Dublin, of the 8th of July 1836.

The Report of Rear-Admiral Sir James Gordon, Captain Beechey, R.N., Lieut.-Col. Sir Frederic Smith, and Professor Barlow, dated 14th January 1840, relative to the best means of communicating between London and Dublin, in pursuance of an Address of The House of the 12th August 1839.

A Petition

A Petition presented to The House by J. Ormsby Gore, M.P. and others, commenting upon the Naval Branch of the last-mentioned Report.

The replies to certain accusations made against the said Naval Commissioners, printed and laid before the Committee on the 11th May 1842.

A Correspondence between Lord Eliot, as Secretary for Ireland, and the Lords Commissioners of the Admiralty, in the month of March last, a copy of which will be found in the Evidence of Mr. Shaw, given in the Appendix.

And a letter from James Perry, Esq., to the Chairman of the Committee, dated Dublin, 17 June 1842, and inserted in the Appendix.

Your Committee would earnestly impress upon The House and the Government the importance of procuring without delay such further information as may be deemed necessary in order to a satisfactory decision between the two Ports of Holyhead and Port Dynllaen; and Your Committee submits, when such decision shall have been made, that no time should be lost, or reasonable expense spared, for the purpose of establishing, upon the foregoing principles, the most direct, certain, and rapid line of communication between this Metropolis and the Seat of Government in Ireland.

Referring to the Southern Communication: in the absence of this necessary machinery for carrying into effect a general system of Central Communication, as above referred to, and having regard to the exigencies of the West of England and the Mineral Districts of South Wales, Your Committee are not prepared to recommend the discontinuance of a Southern Communication with Ireland; they have therefore considered the question of Southern Communication, as regards the existing line through South Wales by Hobb's Point and Waterford; as also in reference to a proposed line between some Port in the Bristol Channel and the Ports of Cork and Waterford.

The Evidence which has been received by Your Committee on the subject
of the line through South Wales, by Hobb's Point to Waterford, shows
distinctly that, as at present managed, it is singularly inefficient as a channel
of Correspondence. While in Cork the average of Letters received in one day 1588.
viâ Milford, upon a fortnight's calculation, was only 38; it was also shown, 1603.
that as a medium of communication with London, the merchants of Water- 1876.
ford prefer to avail themselves of the transit through Dublin, rather than the
line by Hobb's Point. Several reasons may be assigned for this preference:
First, the delay of four hours and three quarters which takes place between 209.
the arrival of the Mail at Bristol, and its despatch thence to Hobb's Point; 211. 212.
secondly, the bad state of the Ferry at the Old Passage; third, the absence
of Railway Communication through South Wales; and lastly, the insuffi-
ciency in size and power of the Steamers employed between Hobb's Point and 275.
Waterford to perform the duties assigned to them. Your Committee are
therefore of opinion, that the only efficient means of making that line avail-
able as a useful channel of Correspondence would be, first, by doing away with
the delay in the transmission of the Mail from Bristol; the improvement of
the Ferry at the Old Passage, the construction of a Railway through South 206, 207.
Wales, and the substitution of a proper class of Steamers at Hobb's Point. 276.

Your Committee have received evidence as to the point in the Bristol
Channel which is the most eligible for the purpose of a Packet-station in
communication with the South of Ireland, and they proceed to submit the
result of their investigation on this head. It appears that an Act of Parlia- 89, 90.
ment was obtained in the last Session of Parliament for the erection of a
Floating Pier at Portishead, and the estimated expense thereof, as far as Your

95. Committee have been enabled to gather, would amount (in connexion with
236. other necessary works) to about 70,000 *l.* It was alleged that a Floating Pier
was preferred, in consequence of the rapid current in the river, as having a
104. tendency to accumulate mud and sediment. It is also in evidence that the
time consumed in conveying the Mail from Bristol to Portishead would be
93. one hour. Although at present the proposed Pier at Portishead is not commenced,
still it appears (if selected by the Government as the point of departure) it would be immediately proceeded with.

Your Committee have also received evidence touching Brean Down, another
Port in the Bristol Channel, near Weston-super-Mare. In contrast with
Portishead, Brean Down possesses these advantages, that it lies further
124. down the Bristol Channel, saving thereby 20 miles of the most intricate part
122. of the navigation, while its contiguity to the Bristol and Exeter Railway
brings it in point of time within three-quarters of an hour of Bristol; thus
125. effecting a saving, as compared with Portishead, of from two hours to two
hours and a quarter. The Brean Down Roadstead is said to be protected
115. from winds all the way from the north-east round by the south to about
south-west. It is stated in the Evidence of Capt. Tayler, R. N., that the anchorage
is good, and the locality adapted to the Floating Breakwater of which he
is patentee, and which he asserts would give the requisite protection at a cost
4134. of 7,000 *l.*, provided the Government would furnish the necessary moorings
and chain cables; and that a Landing-place might be constructed at the further
expense of 5,000 *l.* On the other hand, Commander Denham, R. N., doubts
the applicability of a Floating Breakwater to such a situation, and estimates
the expense of a sufficient Pier at 70,000 *l.*

Your Committee have taken into consideration the relative claims of Cork
and Waterford to be selected as the Port best adapted for the Southern Communication.
The advantages which are stated in favour of Waterford are its
2611. greater proximity to England, being within four hours less sail than Cork
(and the passage being less exposed to the winds in consequence of a nearer
land-fall), and also its convenient position with regard to several important
towns lying in its immediate vicinity. As to the latter point, there can be no
doubt that an important district to the East and South-east of Ireland would
have their Correspondence accelerated thereby; at the same time it is by no
1660, 2604, 2639. means clear that for all practical purposes the Post-office Communication
between London and a great portion of England and Dublin would not be
equally available for the greater part of the same district; while the time
of the Mails reaching Waterford from London would be at a period after
business hours, that would render this accelerated arrival of little advantage
1650. to Waterford itself. To counterbalance, however, the proximity of Waterford,
Your Committee have examined naval testimony as to its facilities of entrance,
and find that it is a Bar-harbour, not having more than 12 feet at dead low
water and spring tides, as stated by some, or 14 as asserted by others; so that in
heavy gales of wind it might at times be dangerous to attempt to enter it with
vessels of greater draught than those now in use, which draw about nine feet.
Moreover, it is in evidence that there are difficulties in the navigation of
1760. the river up to Waterford Quay, insomuch that on some occasion pilots have
refused to take charge of vessels at night; while others, admitting the risk,
question its extent; and it appears that the present packets have never been
prevented from making the quay at Waterford. Cork Harbour is, in point of
time, four hours more distant, and subject to greater exposure to the winds

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on the voyage, as already stated, but it has none of the above-mentioned difficulties to contend with. It has no bar; has a good land-fall, good high land, the entrance is easy of access, and all men-of-war, even three-deckers, 308. can get in and out of it. The navigation inside the Harbour, up to Passage, where the Packet-station would be, is perfectly free from danger and intricacy; and the external navigation is so well defined by soundings, that in a fog the Harbour has been made by means of the lead alone. 1184. It also appears that a large and increasing population to the westward of Cork, embracing 1628. 1631, 1632, several important towns, together with portions of Kerry, would have their 1633. 1635, 1636. Correspondence accelerated with several parts of England nearly a day, by means of employing Cork as the Harbour in connexion with England.

One particular in which Cork differs from Waterford is, that it is a great rendezvous for vessels outward-bound, and that from its position in the Channel it is the Port most frequently first made by vessels coming from the westward. The consequence is that such vessels post their Letters at Cork, as they are bound by law to do. It has, moreover, happened that in the course of the last few years two large steamers, bound from America, have put into Cork in stress of weather; and in consequence of the want of a direct communication with England by steam, a delay of three days has taken place in the transmission of the Letters by Dublin, the coaches being insufficient for the purpose of their conveyance at one journey.

The Revenue of the Waterford Post-office derived from Letters received 2644, 2645. in the town itself, is for the year ending 5 April 1842, 1,702 *l.*; that of Cork, for the same period, is 3,399 *l.*

The number of Passengers from Cork and Waterford to Bristol is in favour of the former, in a ratio of about 4 to 1, while the trade between Waterford and Bristol appears to exceed that between Cork and Bristol. This latter circumstance may be accounted for by the fact that Cork has steam communication with London, and also with Dublin and Glasgow, which is not the case with Waterford.

As evidence of the utility of a Southern Post-office Communication, it has been shown to Your Committee that the merchants of Bristol frequently employ the steamers trading respectively between the Ports of Bristol, Waterford, and Cork, for the conveyance of their Letters, instead of sending them by Milford; and that in many instances the time of sailing of the Cork and Waterford steamers from Bristol having chanced to suit the arrival of the London train, the London newspapers have been delivered at Cork and Waterford 24 hours before the ordinary Mail.

It has been matter of deliberation with Your Committee, in what manner the Post-office Communication of South Wales shall be conducted in the event of the discontinuance of the Packet from Hobb's Point to Waterford, and the substitution of a Packet-station from some point in the Bristol Channel. It has been suggested in that event that proper steamers should be established between the selected Port in the Bristol Channel, and Newport or Cardiff. While by this new arrangement Merthyr Tydvil and other important places 143. would have their Correspondence with Ireland accelerated, Swansea and all Ports to the west would no doubt have it retarded.

Your Committee have carefully weighed the Evidence given before them, and considered the very able though conflicting Reports of Captain Beechey and Sir John Rennie, as to the relative merits of the Ports to be selected for the transmission of the important Mails to and from the North of England and Scotland to Ireland; and three Lines have been submitted to them:—

1st. The existing Line from Portpatrick to Donaghadee.
2d. A Line to be established from Cairn Ryan to Larne.
3d. A Line to be established from Cairn Ryan to Belfast.

In favour of the first have been adduced, the shortness of the passage, which is decidedly a great advantage, the claim of its being already the established Line, and the fact that large sums have been expended in the formation of the Harbour, which, at least in the case of Portpatrick, would be completely thrown away if this station were abandoned. It appears, however, that for repairs, and in order to enable even the present most inefficient steam-packets to leave the Harbour at all times of the tide with safety, a considerable additional outlay must be incurred at Portpatrick: of course this must be materially increased if steamers of larger size and greater power were to be employed, and to be provided with accommodation to enable them to be afloat when in the Harbour.

The Harbour at Donaghadee is completed, and although perhaps not the one that would be selected at present, seems to be sufficient for the purposes required.

As regards the second proposal, the Harbours of Lough Ryan and Lough Larne are safe, and well adapted for the reception of steamers of a proper class; and it appears that commodious Landing-places could be erected at Cairn Ryan and Larne at a comparatively small price, which, as is intimated in the Evidence, might, perhaps, be undertaken by the proprietors of the adjoining estates.

There does not seem any reason to apprehend that the Mails would not arrive at Belfast at least at the same hour and with greater regularity than they do at present, and the communications of the commercial towns of Derry, Coleraine, Ballymena, &c. &c., both with Scotland and to London, would derive considerable advantage by the adoption of that route, while the Correspondence of the important towns in the county of Antrim would be forwarded to and from Dublin, &c. through Belfast with greater facility than at present, and a considerable saving made to the Post-office, by enabling them to discontinue the various Mail-cars employed to convey the Letters to those towns by circuitous routes.

With respect to the third proposition, of sending the Packets to Belfast, there do not appear sufficient grounds to suppose that any corresponding advantage would be obtained to compensate for the delays arising from the increased length of passage up the Lough to Belfast. The improvements at that Port have not progressed sufficiently to enable Your Committee to state that it could now be used for the despatch and arrival of steamers at fixed hours; and a steamer from Belfast to Cairn Ryan does not appear to offer the same prospect of gain from conveying passengers as one from Belfast to Greenock or Ardrossan; but the adoption of either of these latter Ports would, in the present state of Railway communication between England and Scotland, deprive the North of Ireland of the advantages at present derived from the early transmission of the Mails from the South of Scotland and North of England, and render useless the power at present possessed by the merchants in Derry, Coleraine, Ballymena, &c. &c., to communicate with London through Scotland, by which many hours are gained by them.

From the contradictory testimony given by the different witnesses, and the conflicting statements in the two Reports before alluded to, Your Committee experience great difficulty in recommending a Port for the transmission of the Mail; they do not think that on the whole any great return for passenger trade can be reasonably expected, either on the present Line or on that from Cairn Ryan to Larne. If the present Line through Portpatrick and Donaghadee be continued, a large immediate outlay must be incurred to ensure the safety and punctuality of even the present steamers; and from the exposed situation of the Harbour of Portpatrick, there is reason to apprehend that that must be followed by a large annual expenditure.

Captain Evans, R.N. and Captain Beechey, R.N. express themselves very decidedly that Portpatrick cannot be rendered a fit Port for the departure of steamers, while Sir John Rennie gives a directly opposite opinion.

Your Committee recommend the adoption of such Port as may appear to hold the prospect of the least future outlay; and that measures be taken to ensure the regular arrival of the Scotch and Irish Mails, and a more powerful class of Packets, at whatever Station the Government may select for the departure of the Steamers.

27 *June* 1842.

PROCEEDINGS OF THE COMMITTEE.

Veneris, 15° die Aprilis, 1842.

Present:

Lord Ingestre.
Mr. W. Johnson.
Mr. Corry.
Mr. Philip Miles.
Mr. Serjeant Murphy.
Sir R. Ferguson.
Captain Dalrymple.
Mr. Reade.
Mr. Owen Stanley.
Lord Emlyn.
Mr. Morgan.
Mr. Vivian.
Captain Berkeley.

Lord Ingestre called to the Chair.

Committee deliberated on the course of their proceedings.
Mr. Stow, from the Post-office, produced various Accounts.
Mr. Stow to attend on a future day.
Several Accounts ordered.

[Adjourned to Monday.

Lunæ, 18° die Aprilis, 1842.

Present:

Lord Ingestre, in the Chair.

Sir D. Norreys.
Mr. O. Morgan.
Mr. P. Miles.
Mr. Serjeant Murphy.
Captain Dalrymple.
Mr. Vivian.
Lord Emlyn.
Mr. O. Stanley.
Mr. Johnson.
Mr. Corry.

Committee deliberated.
Several Accounts ordered.

[Adjourned till Wednesday.

Veneris, 20° die Maii, 1842.

Present:

Lord Ingestre, in the Chair.

Sir D. Norreys.
Mr. Shaw.
Lord Emlyn.
Captain Berkeley.
Mr. O. Stanley.
Sir R. Ferguson.
Mr. Reade.
Mr. P. Miles.
Mr. Serjeant Murphy.
Mr. Irving.
Mr. O. Morgan.
Mr. Grogan.

Several Accounts ordered.
Committee deliberated on the course of their future proceedings.

[Adjourned till Monday.

Martis, 21° die Junii, 1842.

Present:

Lord Ingestre, in the Chair.

Mr. Shaw.
Sir D. Norreys.
Lord Emlyn.
Mr. Grogan.
Mr. Serjeant Murphy.
Mr. Irving.
Captain Berkeley.
Mr. P. Miles.
Mr. Vivian.
Sir R. Ferguson.
Mr. O. Stanley.
Mr. Corry.

Communication from Mr. Bianconi read.
Committee deliberated respecting their Report.

[Adjourned till Monday.

Lunæ, 27° *die Junii*, 1842.

Present:

Lord Ingestre, in the Chair.

Mr. Corry.
Mr. Grogan.
Lord Emlyn.
Sir R. Ferguson.
Captain Berkeley.

Mr. Shaw.
Mr. Serjeant Murphy.
Sir D. Norreys.
Mr. P. Miles.
Mr. Irving.

Draft of Report; several alterations made, and Report agreed to.

To Report.

EXPENSES OF WITNESSES.

NAME of WITNESS.	PROFESSION or CONDITION.	By what Member of Committee Motion made for Attendance of the Witness.	Date of Arrival.	Date of Discharge.	Total Number of Days in London.	Number of Days under Examination by Committee, or acting specially under their Orders.	Expenses of Journey to London and back.	Expenses in London.	TOTAL Expenses allowed to Witness.
							£. s. d.	£. s. d.	£. s. d.
Christopher Claxto	Harbour-master at Bristol.	Chairman	20 April	20 April	1	1	3 10 –	1 1 –	4 11 –
George Burgess	Commander of Steamer.	ditto	22 –	22 –	1	1	3 10 –	1 1 –	4 11 –
W. D. Price	Harbour-master, Waterford.	ditto	21 –	23 –	3	6	9 – –	6 6 –	15 6 –
W. Smith	Merchant at Bristol.	ditto	28 –	28 –	1	1	3 10 –	1 1 –	4 11 –
Thomas Parsons	Postmaster, Waterford.	ditto	27 –	1 May	4	2	9 – –	4 4 –	13 4 –
W. P. White	Harbour-master, Cork.	ditto	28 –	—	3	1	10 10 –	3 3 –	13 13 –
Arthur Webb	Postmaster, Cork	ditto	1 May	3 –	3	1	10 10 –	3 3 –	13 13 –
Merion Moriarty	Commander of Steamer.	ditto	—	—	3	1	10 10 –	3 3 –	13 13 –
John Edwards	Harbour-master, Swansea.	ditto	4 –	6 –	3	1	8 8 –	3 3 –	11 11 –
James Kendrick	Surveyor, Post-office, Ireland.	ditto	8 –	13 –	5	2	10 – –	5 5 –	15 3 –
Arthur Russell	Harbour-master, Belfast.	ditto	10 –	—	3	1	10 – –	3 3 –	13 3 –
Luke Smithett	Commander H. M. Packet at Dover.	ditto	5 June	6 June	2	1	4 4 –	2 2 –	6 6 –
Edward Hall	Collector of Customs, Falmouth.	ditto	9 –	11 –	3	1	13 4 –	3 3 –	16 7 –
William Rees	Commander of Steam-packet.	ditto	12 –	13 –	2	1	3 – –	2 2 –	5 2 –
John Hammond	Commander of Mail-packet at Hobb's Point.	ditto	—	—	2	1	16 12 –	2 2 –	18 14 –
John Drew	Harbour-master, Bristol.	ditto	—	—	2	1	3 10 –	1 1 –	4 11 –
John Allen	Commander of Steamer, Cardiff.	ditto	—	—	2	1	3 – –	2 2 –	3 2 –

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MINUTES OF EVIDENCE.

Mercurii, 20° *die Aprilis*, 1842.

MEMBERS PRESENT.

Captain Berkeley.
Mr. Corry.
Lord Emlyn.
Sir Robert Ferguson.
Mr. W. Johnson.
Mr. Miles.
Mr. Octavius Morgan.
Mr. Reade.
Mr. Stanley.
Mr. J. H. Vivian.
Mr. Murphy.

LORD INGESTRE, IN THE CHAIR.

Christopher Claxton, Lieut. R.N. called in; and Examined.

Lieut.
C. Claxton, R.N.
20 April 1842.

1. *Chairman*.] YOU are Harbour-master at Bristol?—I am.

2. How long have you been so?—Seven or eight years.

3. You are also managing director of the Great Western Steam Ship Company?—I am.

4. I suppose you have a knowledge of the Bristol Channel, and the harbour of Bristol generally?—Yes, pretty good.

5. Will you state your opinion as to the practicability of the navigation of the Bristol Channel, for steam navigation?—I cannot conceive there can be anything much better.

6. Is there any difficulty of access to the immediate port of Bristol?—There is no difficulty beyond the ordinary difficulties, which seamen take care to be aware of. The course is very nearly straight from sea.

7. Alluding particularly to the entrance of the port, the Holms, Kingroad, and up the river?—There are decided difficulties in the Bristol river, because it is only navigable four or five hours in every twelve. The part of the port of Bristol I am considering is Portishead. There are no difficulties up to that place.

8. How long has the Great Western Steamer been running?—She is in her fifth year.

9. How many voyages has she made?—She has made 22 voyages, and is on her 23d.

10. Twenty-two out and home?—Yes.

11. She is on her 45th passage?—Yes.

12. Have you ever known her detained or retarded in any of those passages?—Never, one hour.

13. Has she come in at different times of the day and night, as well as at different times of the tide?—She has come in at all hours of the night, all states of the weather, and all times of the tide.

14. That is, as far as Kingroad?—Yes; she does not go up to Bristol, except for refitting.

15. From your knowledge of the Bristol Channel, have the goodness to state how steamers coming from Ireland would make their landfall?—Steamers from Cork and Waterford would make different landfalls. I apprehend steamers from Waterford make the Smalls; that is in their direct passage, or nearly so; and they frequently go between the Islands, when they can either get shelter from the winds or get favourable tides.

16. Having made the Smalls, can they proceed in safety straight up the Bristol Channel in thick weather?—Certainly, there is nothing in the way in the fair course.

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17. Without making Lundy?—Yes; they very rarely see Lundy coming from Waterford, I should think.

18. Now, from Cork?—From Cork they make Lundy, probably.

19. And having made Lundy, how do they proceed?—It would depend a good deal on which way the wind was, and the weather even, their making Lundy. If the wind were blowing from the northward and westward, Cork vessels would hug the Welsh coast, for the sake of getting smoother water.

20. But having made the Smalls or Lundy Island, you would consider it safe for a steamer to proceed up the Bristol Channel?—Quite safe; and I know many of them have proceeded and passed the Holms without making any other land in thick weather.

21. There is a lighthouse on the Holms, is there not?—Yes.

22. Can you give the Committee any information as to the number of steamers that pass up and down the Bristol Channel to Ireland?—There are two a week to Cork each way, two a week to Waterford, and two a week to Dublin, which are obliged to manage their times of starting according to the state of the tide at present; one a week to Liverpool, besides the Channel steamers.

23. Can you give any idea of the number of passengers that go by those steamers?—I cannot give the number of passengers except from information that has been given to me by the captains of the steam-boats. It could be got from the owners.

24. Have you any reason to doubt the accuracy of that information?—No. There are more passengers to Cork than there are to Waterford. I am told by the captains, that to the Waterford boats they average five cabin passengers in the winter, and from 10 to 15 in the summer, and that there are more than double that number to Cork.

25. Have you ever known any accident happen to any of those steamers?—There have been, since the steam-packets have been running from Bristol, two losses in the Bristol Channel, the Frolic and the City of Bristol, and two in the Irish Channel. The Frolic was lost before those lighthouses were put upon the Nash Point, by running aground, and the City of Bristol in Rossilly or Carmarthen Bay, owing to coming to anchor. Carmarthen Bay is in and out of the Bristol Channel; it is within the headlands, but out of the track.

26. Can you tell to what part of the south of Ireland the principal part of the trade goes?—The largest trade between Bristol and Ireland is with Waterford.

27. What means have you of knowing that?—That information was given to me by an Irish provision-merchant. There is an immense business between Waterford and Bristol in every description of Irish produce, pork, bacon, butter, lard, flour, wheat, oats, barley, ale, and porter. There is more general business between Waterford and Bristol than any other part of Ireland.

28. Have you made it your business to make inquiry of competent authorities into these points?—I think so. The party who has given me that information has more business with Cork than he has with Waterford; there is a large business with Cork.

29. Mr. *Miles*.] There is a very large trade with Wexford springing up, is there not?—Yes; but it lies through Liverpool. There is an iron steam-packet from Wexford to Liverpool, and an iron steamer with the same owners from Liverpool to Bristol, which used to touch at Wexford, but now it does not; she touches at Swansea.

30. *Chairman*.] From your knowledge of trade, do you think it would be to the advantage of the trade of Bristol, and of those two ports, that there should be a daily communication between either Bristol and Waterford, or Bristol and Cork, and generally with the south of Ireland?—I think it would be of immense advantage to merchants, and they tell me so themselves.

31. Have they not now every facility for correspondence by the existing line of packets?—Not by the Milford line.

32. Why not?—Because they are very irregular; and on the days of the Bristol packets sailing, they generally arrive six or seven hours before them. When the mail leaves Bristol, about the time the Bristol packet sails, which is about eight in the morning, they frequently arrive at Waterford from six to seven hours before the mail by Milford; therefore merchants seldom write by that post, they write by the Bristol ships which carry mails or bags.

33. Is that done to both ports, Cork and Waterford?—Yes.

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34. Mr. *Vivian.*] That is when it happens that the steamers start under favourable circumstances as to tide?—That is, when the time for their starting is anywhere near, so that you can compare notes; they invariably beat the mail by Milford.

35. At that time they have the whole of the ebb down the Channel?—Yes; that they always have sailing from Bristol.

36. Because they sail at high water?—Yes.

37. But if they carried the mail they would have to sail at low water as well as high water?—Yes.

38. And then they would have to meet the flood tide?—Yes; but with respect to that answer, there is another I would have gone on with, which is, that by writing to Dublin by the north mail, which leaves Bristol at four o'clock every evening, letters arrive at Waterford with greater certainty, and frequently before letters sent by the Milford mail, which left Bristol at seven o'clock the same morning.

39. Mr. *Morgan.*] Do you mean greater certainty as to time?—Yes.

40. *Chairman.*] Can you give the Committee any information as to the average length of the passage from Bristol by the boats to Cork and Waterford?—It is 22 hours to Waterford, or thereabouts, I believe. Coming back they arrange their times of sailing, so as that they shall, in all probability, save the tide up to Bristol; and, according to the power of the steamer, or according to her speed, they allow for the passage 26 or 28 hours, but they frequently might make it in 19 hours only; when they do make a good run to the Bristol Channel, they either slow the steamer all the way up the Bristol Channel, or anchor in Kingroad until the tide serves to go up. If they go slow or anchor that will increase the average to Bristol, so that it is almost unfair to take their averages as a criterion of what the length of the voyage ought to be. I think it ought not to be more than 19 hours.

41. If there were a harbour and landing anywhere in the Bristol Channel, would the average of necessity be so long?—Certainly not.

42. Mr. *Stanley.*] Is there any such harbour now?—Not at present.

43. Mr. *Vivian.*] Is there any harbour in progress?—There is an Act for a pier at Portishead, which would go on immediately if there were any chance of business arising out of it, such as a line of rapid packets.

44. *Chairman.*] You have given us the length of the passage to Waterford, now be so good as to give us Cork?—The average is four hours more each way, I should suppose.

45. The same circumstances apply to Cork as to Waterford in coming back?—Yes.

46. That is, under favourable circumstances, it is four hours more?—Yes.

47. Have you ever made the passage yourself from Bristol to Waterford, or from Bristol to Cork?—Never.

48. With the prevailing winds in the Irish Channel, has a Cork steamer or a Waterford steamer most to contend with?—The prevailing winds are south-west and west-north-west, or north-west, nine or ten months in the year all over our coast, and of course the one which gets nearest the land soonest has an advantage. It gets into smoothest water; that would be the Waterford steamer. If I were to go to Cork, and it were blowing hard to the west-north-west, I should make the land well to the northward.

49. Will you state the power of the vessels that are now plying between Bristol and the south of Ireland?—The Nora Creina is about 400 tons burthen, and 120 horses' power; and the Osprey is 180 horses' power.

50. What are the Cork boats?—I am not sure; but I think they are 180 horses' power each, and better than 400 tons.

51. All these vessels, I believe, carry cargoes?—Yes; these vessels depend principally upon cargoes.

52. From your knowledge of steam-vessels, and your experience, do you think it material that they should not carry cargoes?—It is material, decidedly, for speed and dispatch.

53. Then in your opinion, if boats were built on purpose, with sufficient steam power, do you think much time might be saved in the passage?—Yes; I think the passage from Portishead to Waterford ought not to average more than 17 hours in the present state of steam navigation.

54. Lord *Emlyn.*] Is that starting at all times of the tide?—Yes.

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55. Mr. *Vivian*.] Do you consider that any class of steam-boats could make upon an average more than 10 miles an hour?—Yes; I think 11 statute miles.

56. In all states of the tide?—Yes; taking one with the other, the flood and the ebb together. I believe the boats which go from Liverpool to Glasgow average 13½ English miles an hour, that is, nearly 12 knots.

57. You think they would average 11 miles an hour?—Yes; I think they would, without difficulty.

58. Taking the most favourable state of the tide and the most unfavourable, what do you think would be the difference in the average passage upon the voyage to Ireland?—Not more than 10 miles, or one hour.

59. *Chairman*.] In the improved packets you speak of, what should you think would be the difference in point of time in the passage between Bristol and Cork, or Waterford?—A little better than three hours.

60. That is, taking the generality of weather?—Yes.

61. If it should be determined to have a line of packets from Bristol to the south of Ireland, what would be the class of vessels you, from your experience, would recommend?—I would recommend iron vessels of 500 tons, with at least 250 horses' power, and capable of carrying no more coal than would just last them to Cork or Waterford, and back again; that they should be so fine in their lines, that they should not carry any cargo, and no more coal than necessary for the voyage: 600 tons and 300 horses' power would be better, but more expensive.

62. In stating that opinion, have you considered the sea they would probably have to encounter in those voyages?—Yes; and I consider the finest line vessels make the best weather in the heaviest sea in our Channel.

63. Captain *Berkeley*.] Do you think if the vessels you describe as going 13½ miles an hour, were to make the passage from Bristol to Cork or Waterford, they would average the same passage?—They would average 11 miles.

64. What is the difference you allow between a vessel going with a fair wind or a wind a-beam in smooth water, and one in the sea which it would be likely to encounter in a south-west gale crossing from Bristol to Cork?—With a foul wind and a heavy sea, I should think, these boats in our Channel ought never to be brought to less than seven knots. If the question were one of the Atlantic Ocean, where there were no protection to be got from land, from the coast I should say, they might meet with such a sea there that they might be nearly stopped; it might not be prudent to drive against it; they would not be able to use their engines with full power; but I should think a vessel which had to go head to the wind and before the wind would make better averages in heavy weather than a vessel which has the wind a-beam blowing hard. It is the worst position a steamer can be placed in, with the sea breaking upon her broadside; it is the only position in which the Great Western has had to mind what she was about in crossing the Atlantic. With the wind a-beam the sea is a-beam. In even fresh breezes a fast steamer would make a beam wind a head one; her sails would lift.

65. Mr. *Vivian*.] What is the course from Bristol to Waterford?—About west-north-west. I am not certain; it varies.

66. From what quarter are the heaviest gales in the Bristol Channel?—Gales from the north-westward are as bad as any.

67. Mr. *Miles*.] With a 500 tons vessel would there be any difference in the voyage out and home?—Yes; in the return voyage there is always a difference, from the prevailing winds.

68. How much difference does that make in point of time?—About a knot an hour; there is that difference between a fair and a foul wind. I am talking of the general average, taking it from one end of the year to the other, and seeing that our boats never miss their passage. I put aside extreme cases.

69. You take seven miles an hour as an average passage?—Yes, in bad weather; there is a gentleman who has to do with the Princess Royal steam-boat, who said he would contract to go 15 miles an hour, at the meeting at Cork, I believe, on this business.

70. Mr. *Reade*.] Would a Cork or Waterford packet be most likely to meet with the roughest weather on the voyage from Bristol?—The Cork boats; because they would have less protection and farther to go.

71. Mr. *Morgan*.] Are the packets from Bristol ever stopped in consequence of the state of the weather or the tide?—Not at Bristol.

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72. In their way down the Channel?—When they get as far as the Holms, if they have a flood-tide against them, and a very heavy gale of wind blowing, it would be madness for them to go on; they generally drop their anchors until the flood-tide has run itself out.

73. What difference does that delay make in the length of their passage?—Under those circumstances, probably none; because they would do no more against the gale and a flood-tide than hold their own at an expenditure of fuel to little or no purpose.

74. What difference would it make in the length of that passage?—It would lengthen the passage by all the time they had to lie bye at Penarth roads or elsewhere.

75. Then supposing these boats you speak of were adopted, would they be able to run their course in defiance of the wind and tide?—I think so.

76. To keep the sea at all times?—I think they would go, under those circumstances, from three to four knots an hour faster than the present boats, at those particular times; therefore it would be worth their while to run those five hours instead of lying by.

77. Mr. *Miles*.] What description would you give to the present boats from Bristol to the south of Ireland?—They are very good sea-boats for cargoes, and generally with good power.

78. Are they not built in a peculiar way to allow them to go in and out of the docks?—They are obliged to be narrower than they ought to be for such a voyage.

79. And do not people object to going in them from their being so small?—They are smaller than the class of steamers which run to Ireland from other ports, with only half the length of voyage; but they are fine vessels.

80. Do you think there would be a great many more passengers if they had larger boats and better accommodation?—Certainly.

81. Do you apprehend, if those boats which you have alluded to were adopted, those boats, which would be mail-boats, could sail regularly to a given hour from Bristol, or some port in the neighbourhood?—From Portishead, I have not a doubt of it.

82. And they could always make, with a certain regularity, their course to Cork or Waterford?—I have no doubt of it.

83. They would not be impeded by wind or tide?—I think not, with the lines and power I should recommend.

84. Would there be any difficulty in getting into Portishead Harbour, supposing the pier was made?—I think not the slightest.

85. And, of course, none in getting out?—I think not; certainly not.

86. Mr. *Stanley*.] Which do you think would be most favourable to the navigation, a harbour at Portishead, or a pier at Kingroad, with the advantage of making the place with greater certainty in all states of the weather?—It would be dangerous to make a pier at Kingroad; and perhaps I should explain that Portishead is part of Kingroad; Kingroad begins at Portishead; if there are many ships, they keep anchoring till they reach Portishead, or within half a mile of it.

87. *Chairman*.] Now you have been asked whether there is any part in the Bristol Channel at present at which you can land at all times of the tide?—There is not.

88. You have said there is one in contemplation at Portishead?—There is a floating pier in contemplation at Portishead.

89. A Bill has passed, has it not?—The Bill has passed, and the pier must be built within seven years.

90. It is now an Act of Parliament?—Yes.

91. When did the Act pass?—Last session.

92. Captain *Berkeley*.] Do you know the estimated cost of that pier?—It will depend upon the length. We have been discussing lately whether, if a rapid line of packets can be got to Ireland, it had not better be begun, and added to as wanted.

93. Mr. *Stanley*.] Will you explain what is going on at Portishead now?—Nothing at present.

94. What are the probabilities?—My own opinion is, that the parties who have got the Bill, and who are interested in getting the packets to the port, will not stir until they see something like a chance of Bristol meeting with the

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same encouragement from the Government that almost every other port in England has met with, by being given a line of packets.

95. Can you give us the estimated expense?—The estimated expense for making a pier, with three large tanks, 900 feet long, a chain of communication by a bridge of boats to the land, two viaducts for shortening the road to Bristol, and widening the existing road, is about 70,000 *l.*

96. The whole?—Yes. I believe that each of the tanks is to cost 15,000 *l.*; and I am of opinion that one tank would do, which would take off 30,000 *l.* I believe one would be found enough for all purposes of landing and embarking.

97. Mr. *Vivian.*] What depth of water is it proposed to have at the pier at Portishead?—Eighteen feet at the lowest tide of the year.

98. And do you consider a floating pier would afford substantial protection to the steamers within it?—I have not a doubt of it. I have been watching the place now in all these easterly high winds, for several weeks, and there is nothing in the heaviest weather dangerous to anything but open boats, and very small ones.

99. Mr. *Reade.*] What winds would affect it most?—West-north-west, and round to the north-east; but the sands come so across from the Welsh coast towards Kingroad, that a swell cannot get up; a swell to move, at least, a long vessel.

100. Mr. *Vivian.*] In the estimate for 70,000 *l.* for making the pier, what description of road would there be for the communication to Bristol?—I think it would bring the railway station within eight miles and a half of the pier, and there would be a macadamised road over the Clifton Suspension Bridge to the railway station, without making it necessary to go up or down Rownham Hill. It would cut off about three miles of the present road.

101. Would the road be hilly?—No, not with these two gaps bridged over. There are two vallies the road winds through, and it is proposed to make two viaducts there; two very short ones.

102. Was there not a plan for communicating with the railway to the westward of Bristol?—There is a plan; and I suppose one of these days it will be done.

103. *Chairman.*] Would there be any danger of the harbour filling up if a pier were erected?—Not a floating pier; I think it is very likely a floating pier would be the means of making the harbour deeper, by contracting the water and making it scour the bottom more. It is from the fear of its filling up that the floating pier is recommended by Mr. Brunel in preference to a fixed one.

104. Sir *Robert Ferguson.*] What would be the time occupied in conveying the mail from Bristol to the pier?—About an hour.

105. Mr. *Morgan.*] Until this pier is completed, there can be no boat sailing from Bristol at regular fixed hours; her hours of sailing must depend upon the tide?—If it were a question of landing mails only, we would undertake to make a place they could always start from.

106. How soon?—In six weeks.

107. Could you land passengers also?—Yes, but not carriages, horses, or things for general business.

108. Where would that be?—Just inside the entrance of the river.

109. At Lamplighter's Hall?—About a mile on the north side of Lamplighter's Hall.

110. *Chairman.*] Could the pier you speak of be ready as soon as the necessary steam-boats could be built?—Yes, the landing-place.

111. Mr. *Vivian.*] Does it not happen occasionally in winter that the sea is so rough that boats cannot approach vessels lying in Kingroad?—A boat cannot always, but a steamer can.

112. Then how would you send off the mail?—By a small steam tug. It has never happened that we could not lay vessels alongside the Great Western the whole four years we have been running in Kingroad, except when swinging.

113. Mr. *Reade.*] Then you apprehend there never could be a difficulty in embarking the mail?—No; by means of a small steam tug. Kingroad and the whole of the Severn are a series of races, which are dangerous to open boats, Captain Berkeley and I well know; but with a small steam tug, at all times we can approach a large vessel in Kingroad, except when swinging on change of tide.

114. *Chairman.*] Do you know the place called Brean Down?—Quite well.

115. From

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115. From what you know of Brean Down, will you explain its capabilities, and the possibility of making a sufficient harbour there for the purpose of receiving the class of boats of which you have been speaking?—The point of Brean Down protects the Brean roadstead from winds, all the way from the north-east round by the south to about west-south-west; but from about west or west-by-south round to the north-east, it is very much exposed, and requires protection.

116. Could that protection be afforded?—Yes, at a heavy expense in one way, and at a moderate expense in another way, although not so efficiently.

117. Explain your meaning?—My opinion is, that the best kind of protection would be an island; a stone breakwater; but I have no doubt a floating breakwater would make smooth water against the exposed points.

118. A stone breakwater would be very expensive?—A stone breakwater to be there would require to be 85 feet in depth from the bottom, and consequently it would be very heavy work.

119. It would not be safe for steamers to be there without some protection?—I think not without their steam up, so as to steam ahead against north-west winds.

120. Suppose the harbour were made, would it be equally accessible with Portishead?—More so.

121. How near does the London and Exeter Railroad go to it?—Two miles from the Point.

122. Do you know the time occupied between Bristol and the station nearest to it by the railroad?—About three-quarters of an hour.

123. Then, taking Bristol as the starting point, could the mail be put on board a steamer in less time at Brean Down than at Portishead?—Yes.

124. And what advantage would a steamer have as between the two places on her voyage out?—She would save 20 miles of navigation.

125. That is something like two hours of time?—Yes, full that on an average.

126. On the supposition that both harbours were complete, the letters starting from Brean Down would gain about two hours?—Yes; about two hours and a half.

127. Can you conceive any state of weather when a vessel, such as you contemplate could leave Brean Down, when she could not leave Portishead, or have access to or from?—No.

128. Would it be to the advantage of vessels not to have to go up among the more intricate navigation above the Holms?—Certainly; although I do not conceive that there is anything which people, acquainted with the Channel, need regard between the Holms and Portishead; but they would avoid whatever might arise in a fog or any thick weather between the sands.

129. Mr. *Vivian*.] Can you state at all what would be the probable expense of making a floating breakwater at Brean Down?—The breakwater that I am now talking of at Brean Down is not one at all for use. The breakwater or floating pier that we propose at Portishead will carry 15,000 tons of coal; the one I am now speaking of as a cheap one would be Captain Taylor's breakwater, which will be merely placed to make smooth water; one which you would not go near or make use of like the Portishead one.

130. *Chairman*.] In the event of that smooth water, could not a landing-place be made on the present Point?—A landing-place on the Point would be indispensable; and there would, I think, be the difficulty, because I do not know very well how any landing-place is to be used by a steam-packet at all times and for all purposes where the rise and fall is 45 feet; I cannot conceive how it could be used; it may be by a flight of stairs or ladders, or something of that kind; but where the rise and fall is 40 feet in about four and a half hours, if you put a parcel down, the water would catch it almost; you would have to run for it yourself. I do not know how to bring a packet towards it to land carriages; an inclined plane is the only thing one could think of by the side of the pier, and then you would have to keep moving the steamers all along it. An incline and a floating stage, as at Newport and Chepstow, would not answer in so exposed a place.

131. Is four feet and a half an hour the ordinary rise?—Yes.

132. Captain *Berkeley*.] What is the rapidity of the tide?—At Brean Point it can be scarcely less than six knots.

133. *Chairman*.] Have you been at Brean Down, and looked at it cautiously?—Yes, I have been there, and spent a great many hours there, not with a view to

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to coming here, but with another view; I made a Report upon it to the Bristol and Exeter Directors, and that Report was handed in to the Royal Mail Committee, and not printed.

134. Mr. *Vivian*.] Is not Brean Down the same as Uphill?—No; Uphill is situated as Pill is in our river; a mile up the river from the entrance at low water, and the river flows up; there is no water there for five hours in every twelve, or thereabouts.

135. Then it is your opinion that a harbour cannot be made at Brean Point, except at an enormous expense, that vessels might enter at all times?—It is almost an engineering question, more than a nautical one. There is no facility at present of landing at Brean Point, and there is no facility of communication except over the Down, which is quite an open down, and 200 feet high, and precipitous.

136. Then do you consider Brean Point is out of the question as a packet station?—No; not if the Government would take it up. I stated, in my evidence before the Mail Committee, that Brean Point might be made a good harbour by the Government, but not otherwise; that it was beyond the means of private speculators.

137. *Chairman*.] You say that Brean Down, if it is worth going to the expense of making a harbour there, would be a very good packet station?—Yes, admirably fitted for it; and better suited than Portishead as regards the question of the railroad and passengers, or than any other place I know.

138. Now with respect to the mail packets going from Bristol, what accommodation could be afforded to correspondence and to passengers that might come from Newport and Monmouthshire, and that district of country, supposing a line of packets to be established?—Before anything could run regularly at stated hours from any pier or station on the English side of the Channel, a landing-place would be required on the Welsh side, which does not at present exist; but I am told that a landing-place might be made at Cardiff, if we made one on our side, or near Cardiff.

139. Is there not a railroad at Cardiff?—There is a railroad from Cardiff to Merthyr. If a landing-place were made on both sides for vessels to sail and arrive at all times of the tide, I am of opinion that two steamers might go across as often as the trains go to London. Two steamers would keep up the communication, or even one might be enough.

140. From Portishead?—Yes, to Cardiff, nearly as often as the trains go, with two.

141. Then in your opinion, as far as that district of country is concerned, supposing all that you propose to be arranged, the Newport and Cardiff district would obtain an acceleration of their correspondence?—They would obtain a certainty which they have not now. No man in Wales can tell when the steam-packets are to sail, unless he goes and looks for a paper, because the time alters every day, or nearly every day.

142. That is as regards passengers?—Yes; it is more a question of passengers and public utility than of letters.

143. Will you compare the existing state of transmission of letters from Merthyr Tydvil, for instance, by Milford and that proposed by the line of packets from Bristol and the south of Ireland?—Letters from Merthyr, which is a great place of business, would by these means which I have now mentioned be about three hours in advance of what they are at present by the Milford mail in their arrival at Waterford.

144. According to that, you think it would be rather an advantage to Merthyr Tydvil and that district?—Yes.

145. How would that apply to places farther west; Swansea, for instance?—Swansea would be worse off; Swansea is better as it is at present; so would be Pembroke and other places to the west.

146. It would be a loss of time to those places?—There is not a question they would be inconvenienced; all Pembrokeshire, Carmarthenshire, and places to the west.

147. All places west of Cardiff would be inconvenienced if the Milford packets were done away with?—Yes; as far as their Irish correspondence is concerned, that is my opinion.

148. Mr. *Vivian*.] Is there not a considerable trade between Swansea and the south of Ireland?—I believe so.

149. And

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149. And between Llanelly, which lies to the westward of Swansea and Ireland?—I believe there is, in corn and coals.

150. Have you made any calculation of the comparative time in which a letter would go from Swansea to the south of Ireland by the proposed route, having to cross to Cardiff, and by the existing route?—I suppose it would be five hours longer, or thereabouts.

151. Is there not a degree of uncertainty attached to all water communication for the conveyance of letters?—I do not think there would be in that case, if landing-places were made in the Channel.

152. Is there not a heavy sea occasionally in the Channel?—Not a sea a steamer with a good power need ever mind greatly.

153. But the steamer to Cardiff would be of small power?—She would be larger than the present ones, with more power.

154. Mr. *Morgan*.] Have not the steamers from Newport and Cardiff been interrupted in their passage to Bristol, and obliged to put back?—I know the Cardiff steamer once put back when I screwed down the Channel in the Archimedes, but I had not known it before.

155. Have you not known the Newport packets put back?—I have not known it; I do not doubt it might be so. If they put back, they did not come near to Bristol.

156. Have they not put back in going from Bristol itself?—When once they go from Bristol, they cannot at all times get back: if they stopped at all, it must be at Pill, or Kingroad, or Portishead, and we know nothing of it in Bristol. If the Committee will allow me, I will get a statement of those facts, and hand it in; but I will venture to say, it will not have occurred once in 12 months with Newport steamers, and it ought not to have occurred with the Cardiff.

157. Mr. *Vivian*.] In your calculation of the time it would take to send a letter from Cardiff to Waterford by Portishead, what do you assume to be the average passage from Cardiff to Portishead?—Two hours.

158. Both ways?—Yes.

159. Supposing, from a heavy gale, from the south-west, the steamer from Cardiff to Portishead were detained for half an hour longer than usual, how would the letters from Cardiff be forwarded?—I think the calculation ought to be made for a three hours' passage, if the average is two hours.

160. Should not regularity be preserved as much as possible in all post-office communication?—I think so, decidedly.

161. Suppose an order was sent to Ireland from Swansea, or any of the ports on the Welsh side of the Channel, for the insurance of a cargo of coals, for instance, that was shipped at Swansea, might not a considerable inconvenience to the merchant arise from the letter being delayed until the next post?—Undoubtedly; all letters ordering an insurance, which are not delivered immediately, might affect the insurer, whether it was sent to Ireland or elsewhere, if the vessel in the meantime were lost.

162. Captain *Berkeley*.] If I understand you right, if you allow three hours for an average passage of two hours, the transmission of letters would be kept up regularly, let the weather be what it might?—I think so, decidedly.

163. The allowance of three hours would insure the letters being delivered in time for the mail under ordinary circumstances?—Decidedly.

164. Mr. *Miles*.] In case letters did not arrive from Cardiff in time for the mail from Portishead, would they not go by Liverpool the same night, instead of being delayed to the next day's post?—They would go by the north mail, as they do now; and so they would from all South Wales, I presume.

165. Then there would be no great delay?—It would operate in this way: if the letter were to Cork, or to the southward of Waterford, it would arrive later by the north mail, and, therefore, it would be affected so far; but to Waterford, as I stated before, if it missed the mail that left Bristol in the morning, it would go as a matter of course by Liverpool in the evening, or Holyhead.

166. Would any casualty that would affect the one steam-packet between Cardiff and Portishead, affect the packet going to Ireland in the same degree?—The Irish boats would be double the size and double the power, and consequently would be less affected by weather.

167. Mr. *Morgan*.] Which do you consider is the best passage across the Channel, from Bristol to Cardiff, or from Bristol to Newport?—If it is to be at

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a stated time per day, the best would he to Cardiff; if as at present, generally, I presume, to Newport.

168. Can steamers at all times enter the mouth of the Cardiff river?—No.

169. Can steamers at all times enter the mouth of the Newport river?—No.

170. If they are to land then on the Welsh side at all times, there must he a landing-place at the mouth of the Newport river or at the mouth of the Cardiff river?—Yes; or by the river Ely. There are stones run down, and you can walk up from a vessel at present in Penarth Road. It is not a bed of mud, it is a bed of stones.

171. Which is the shortest passage now, from Bristol to Cardiff, or from Bristol to Newport?—At present the shortest passage is to Newport, for the vessels sail at the time of tide which enables them to go across the sands.

172. Mr. *Miles*.] Do you think either of those passages would be preferable to Aust?—Yes; I have not the slightest doubt of it, as a question of time.

173. Would it save a considerable time?—Yes.

174. Which would be the best port on the Welsh side, in the event of Brean Down being selected as the point of departure, Cardiff or Newport?—Cardiff would be the line for a communication from Brean Down; but in answer to that, I should say the better line of communication from South Wales to the railroad, if there was a station at Brean Down, would be at Sully Island.

175. Mr. *Morgan*.] Supposing the line of communication with Ireland from Bristol were to be kept up through South Wales across to Milford, which would be the best communication, across the Channel from Bristol to Newport, or from Bristol to the Passage as it now is?—I should say decidedly by Newport or Cardiff.

176. Mr. *Vivian*.] Do you mean for passengers or letters?—For passengers and letters both.

177. Mr. *Morgan*.] Do you think the mail could pass from Bristol to Newport quicker by water than by going round by the Old Passage?—The passage to Newport would be at times the longer passage, because if the vessels must start at a stated hour, they must go round the sands; they cannot at low water go over the sands. At present we are an hour and a half going from Bristol to the other side of the passage hy Aust. We are the best part of half an hour before we get clear of Chepstow, which would be two hours, and we are an hour and a half from Chepstow to Newport; so that it is three hours and a half at present. By my way it would be three hours; an hour from Bristol to Portishead, and two hours the average passage crossing; but if I am to spin it out to three hours, it would be half an hour more.

178. Mr. *Vivian*.] But by the plan you propose it would require a new harbour on the Welsh side?—It would require a landing-place, but I do not apprehend it would require a harbour at Cardiff; the water is always smooth there.

179. And as regards Newport?—Newport is more easy to land at, or as easy.

180. But it is essential that a good landing-place should be formed at either?—Certainly.

180*. Mr. *Morgan*.] Supposing there were a landing-place at Cardiff or Newport, would the packets land there at all times?—If it ran out into sufficiently deep water; it is smooth all along there at such times of tide as vessels cannot go up the river.

181. No matter what the weather was?—No; the sands always keep it smooth. If it were a flood tide you might go up to Newport.

182. All that would be required would be a landing-place at the mouth of the Newport river at times when you cannot go up?—Yes; and at Cardiff I do not suppose you would want to use it above twice a week, or three times, on an average.

183. Mr. *Reade*.] You say the passage from Portishead to Cardiff would be two hours on the average, supposing there were a landing-place on each side?—I think so.

184. Can you form any idea of the distance from the proposed point at Cardiff to Hobb's Point at Milford?—It would take 11 hours.

185. What is the average passage from Hobb's Point to Waterford?—The Government allow 12 hours; the average, I helieve, is less.

186. Do you helieve it could be taken at less with the present packets and the present establishment?—I think not; they are, I believe, proverbially the very worst in the kingdom.

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187. In what time do you suppose it could be done with packets of a proper class?—I think they do it in ten hours and a half; and they could do it in eight hours with proper steamers.

188. What is the distance from Hobb's Point to Waterford?—About 90 miles, I believe.

189. Are you acquainted with Hobb's Point?—Yes, very well.

190. What depth of water is there within the pier at Hobb's Point?—Vessels can come alongside of it.

191. At any state of the tide?—I think, at any state of the tide; but they cannot come at any state of the weather; at least they did not when I was there.

192. Are they affected by the tide in their course through Milford Haven?—Not much; they cross the tide, and they must have as much in their favour as against them. In crossing St. George's Channel, anything that crosses the tide would, I think, be favoured; they would probably have as much flood as ebb, as much to the north as to the south.

193. Then steamers can make their passage with greater regularity from Hobb's Point than from any other point in the Bristol Channel?—Certainly, proper steamers; because the water part is only half the other.

194. The steamers that are at present used are very inefficient?—Very much so; they have been towed in by the Bristol steamers.

195. Lord *Emlyn*.] Did you ever know that happen?—Yes, it happened a fortnight ago; the Trouhadour towed one in.

196. Her engine was disabled, I suppose?—Yes.

197. That was an accident?—Yes.

198. Did you say vessels could not at all times go alongside the pier at Hobb's Point?—Yes: I have been there at night when there was too heavy a sea, and a high wind on the broadside; the mails went off in a boat.

199. When was that?—When the Great Western was in dock there, four years ago.

200. And the vessel could not go in?—No; the captain would not bring her in for fear of thumping her against the pier. When the wind blows there, there is a very nasty sea, and it is difficult to get away from it. I suppose, with a strong westerly gale, it is easier to go off head to sea in a boat.

201. What wind is it exposed to?—West-south-west and west-north-west.

202. Mr. *Vivian*.] Had they any difficulty in sending their bags on shore?—No; I do not know that they had any difficulty in sending their bags on shore; I should think not; they can always.

203. Could they take in their passengers?—They had no passengers to take in. The captain, or some one, came on shore, and said, "I suppose there is not anything for me, as usual," to the guard of the mail.

204. If there were proper steamers on that station, do you think they could perform the passage in eight hours?—Yes.

205. Steamers of the description you have been speaking of?—Certainly, they would perform it in eight hours, and less; they ought to do.

206. Are you acquainted with the Aust or Old Passage ferry?—Yes.

207. Is not that capable of being improved at a comparatively trifling expense, by lengthening the pier at each side?—Yes; at low tide the steamer cannot come alongside at present.

208. The pier might be lengthened, so that steamers might approach, at a comparatively trifling expense?—No doubt.

209. Is not the bad state of that ferry the cause of many passengers being deterred from going by Milford?—I am not prepared to state that.

210. Mr. *Morgan*.] Is not the bad state of that ferry the cause of considerable delay in the transmission of the mail?—Certainly, because I know the guard has been obliged to come across in an open boat when the steamer has been aground, and could not approach the pier.

211. Mr. *Vivian*.] And of considerable delay in the time of starting the mail from Bristol?—I believe so.

212. The mail arriving at Bristol at a quarter past one is not despatched till six in the morning?—I believe that is so.

213. Mr. *Morgan*.] Are the steamers you allude to proposed to be Government steamers, or in private hands?—Either Government steamers, or, as they are at Liverpool, Government contracts.

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214. They are not to be private speculations?—No; no one would do it unless they had a large sum of money secured to them.

215. And the steamers which are proposed to go from Bristol to Newport, or Cardiff, must be upon the same Government footing?—I suppose so; but I have no doubt the steamers from Portishead to Cardiff would pay remarkably well, because the parties taking the contract would look much at that.

216. *Chairman.*] I suppose they would contract to carry the mails at certain specified hours?—If the contract is made, it must be to start at the hours that are named in the contract.

217. Mr. *Vivian.*] What number of steamers would it require from Portishead to Cork or Waterford?—Five.

218. And what number are there at present from Milford Haven to Waterford?—I think there are four.

219. Then there would be a considerable additional expense attending the establishment of packets at Portishead over that at Milford?—As a mere packet question, certainly there would, because it would be as 170 miles to 90.

220. And as it would still require a mail through South Wales, there would be no saving in the communication by land?—Upon the mail line I should suppose not.

221. Mr. *Morgan.*] Would five packets be always required from Bristol to Waterford?—I think so; three to be constantly at work, and one to be ready on each side.

222. And how many between Bristol and Cardiff?—Two.

223. Mr. *Reade.*] Would the present Milford packets answer between Portishead and Cardiff?—They would not go fast enough by three knots an hour.

224. *Chairman.*] The Commissioners who were appointed to look at the different ports made reports of some of the harbours in the Channel; did they make any report of the Bristol Channel?—No.

225. Why did they make no report?—We were ready to go into the business with them; but after the evidence they gave before the Mail Committee, Sir James Gordon and Mr. Drew, we did not consider them proper persons to examine into our Channel, as judges, nor did they think they were themselves; they told us so. The Commissioners read a letter which they had received from the Admiralty, ordering them down, and ordering them to report on the meeting of the last Parliament, giving them about a week or so to do it; and Sir James Gordon, in his evidence, said it would take him two months before he could venture to make a report on the Bristol Channel, and we considered him quite out of court in that business, inasmuch as he also said in his evidence, that he should probably have signed any report which Mr. Drew laid before him, one of his brother Commissioners, who we thought only knew Bristol Channel as a sailing captain, not as a steaming one. But they did examine one witness, and I was appointed by the citizens of Bristol, with the solicitor of the Society of Merchants, to conduct the examination, and we found the Commissioners' counsel rather more the advocates for the English Channel than inquirers into ours; we thought so, and declined having more to do with them.

226. Captain *Berkeley.*] Did not Sir James Gordon state that the reason for not going to Bristol was, that the contract was only for the English Channel?—Yes; but he did come down subsequently to that, by order of the late Government.

Captain *George Evans*, R.N. called in; and Examined.

Captain *George Evans*, R.N.

227. YOU are a Captain in the Navy?—Yes.

228. I believe you were appointed by the Government to examine into the Post-office packet department?—Yes.

229. In what year was that?—In 1835 and 1836.

230. Did you examine the Bristol Channel, and the harbours of Milford, Waterford, and Cork?—Yes.

231. Can you state the general result of your report, or your opinion as to the different ports in question, with reference to Post-office communication with the south of Ireland?—I reported that the packets should be removed from Milford up to Hobb's Point, and that they should go direct from Hobb's Point to Waterford Quay, instead of Dunmore; I also recommended a pier to be built at Hobb's Point, all of which has been done.

232. Did

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232. Did you make any observations as to the class of vessels that should carry the mails?—Yes; I stated that the vessels now employed upon that station were the very worst, though they had by far the most difficult passage to perform of any between England and Ireland; that others were working under the lee of the land, but the packets from Milford had to stem the whole Atlantic Ocean, and should be the best, instead of being the worst packets.

233. Did you make any remarks as to the capabilities or facilities of approaching Cork or Waterford comparatively?—I did; I stated the further they had to go to the westward, the worse it was, and the more uncertain the passage; and the nearer the two harbours were, the greater would be the regularity and certainty of the mails.

234. There can be no doubt of the general proposition, that the less distance you go by sea, the greater the regularity and facility of communication?—Undoubtedly that is so.

235. So that if you could establish as good packets from Hobb's Point as from Bristol, it would be a great advantage that the passage should be short?—You would always go more regularly with a short sea voyage.

236. Did you give your attention to the different ports and posts of the Bristol Channel, with a view to the establishment of packets from thence?—I was only ordered to go to one place, and that was Portishead. I examined Portishead, and I found there was such a rapid current that I did not think a pier could be made there without being filled up by the mud and sediment brought down the river.

237. Did you hear Captain Claxton's description of the floating pier which is proposed?—Yes.

238. Would the same objections apply to that, do you think?—No; but I have never known one of those piers tried, and I should be very sorry to give any opinion as to their stability.

239. Was your attention at all called to the point of Brean Down?—Not at that time, but it has been since.

240. Putting expense out of the question: supposing two harbours were made, one at Brean Down, and one at Portishead, which should you think was the preferable point of departure for steam-vessels to carry the mails direct to the south of Ireland?—Brean Down, unquestionably.

241. Why so?—You have a railroad direct to it from Bristol already, and you avoid all of what we consider the most difficult part of the navigation of the Severn.

242. Do you think there would be any saving of time?—I think so; Captain Claxton stated there would be two hours and upwards.

243. Do you agree in that opinion?—Quite so.

244. Do you think if there were a class of powerful packets established, without cargoes, a communication could be conducted with regularity between Brean Down and Waterford?—It could be conducted very well between Brean Down and Waterford, with a proper class of packets; vessels of 500 or 600 tons burden, with from 250 to 300 horses' power, would make the voyage very regularly.

245. Do you think they would perform the passage with a regularity equal to the Government boats now plying between Liverpool and Kingstown?—No; that is quite impossible, because the boats between Liverpool and Kingstown work in comparatively smooth water to what those would; and to insure equal speed, you must have vessels of a much more powerful class altogether between Brean Down and Waterford.

246. Mr. *Vivian*.] Would they perform the passage with equal regularity as from Hobb's Point to Waterford?—It being longer sea-work the regularity would not be so great, because the shorter the sea-work the greater the regularity; every mile you add to the sea voyage the uncertainty is increased.

247. Would not steamers starting from Brean Point to Waterford have the same open sea which they have in starting from Milford, in addition to the navigation of the Channel?—They would have the same open sea; but I look upon the difficulties of the navigation of the Channel to be entirely removed by starting from Brean Down, it being open, straight way there. There is nothing to interrupt the vessels in going from Brean Down to Waterford.

248. *Chairman*.] As to the difficulties of the open sea, that would apply equally to Hobb's Point as to Brean Down, except as regards the increased distance?—

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tance?—Yes, equally so; the only difference it would make would be that sometimes the course would be more favourable to vessels going from Brean Down than from Milford; but going from Milford she would have her head more to the sea than she would from Brean Down, with the prevailing south-west winds.

249. That is, going to Waterford?—Yes.

250. Cork would be worse?—Yes, as to that; and as to the other remark I made as to the length of the voyage, which always increases the uncertainty.

251. Lord *Emlyn.*] What would be the difference in the length of the sea voyage from Brean Down to Waterford, and from Hobb's Point to Waterford?—From Brean Down to Waterford is 173½ miles, and from Hobb's Point it is about 90 miles.

252. *Chairman.*] Do you consider the difficulties of what you call the sea voyage, to apply to the part that is inside of Milford, so as to apply to Brean Down?—The difficulties only commence when you get outside the Bristol Channel, because you can always keep close to the weather-shore until you get to Lundy Island, and then with a south-west gale you have a better chance of getting into Waterford than if you came out of Milford.

253. That is supposing the wind is from the southward and westward?—Yes; and the wind the other way would make smooth water.

254. The distance appears to be double from Brean Down to Waterford, to what it is from Milford to Waterford; do you think the difficulties as to the sea voyage are double also?—No, not in this case, because part of it is what I call smooth river. There is very little more of great difficulty in the one case than the other; not more, I should say, than about 30 miles.

255. Mr. *Morgan.*] Would not the tide and wind in the Bristol Channel occasionally, from Brean Down to the mouth of it, offer considerable obstructions to any vessels sailing?—Certainly; but then the tide, though against you in one part, would be in your favour in another; it cannot be against you the whole time.

256. With a very strong south-west wind blowing, will not that impede a vessel very much, and render the voyage very irregular?—Yes; and therefore I said, the longer the sea voyage the greater the irregularity.

257. And that irregularity will occur in that part of the Channel which is between Milford and Brean Down?—Between Milford and Brean Down you have comparatively smooth water to what you have in the rest of the voyage across the Channel, and the tide I consider as much in your favour as against you.

258. The tide makes very little difference?—Yes; because if it run five miles against you at one time, it runs five miles in your favour at another.

259. Upon the rest of the passage?—Yes.

260. *Chairman.*] Have you inspected Brean Down closely?—Never.

261. Are you not aware of its capabilities?—No.

262. Mr. *Reade.*] Your opinion is rather against a harbour at Portishead; you think it would fill up?—I reported to the Admiralty that the pier which was then projected would certainly fill up; but the only objection to the floating pier is, that it has never been tried, and therefore no one can give a positive opinion upon it.

263. Mr. *Miles.*] I suppose the tide runs as strongly at Brean Down as it does at Portishead?—I cannot give an opinion upon that, because I have not examined the place; I hear from Captain Claxton it runs quite as strong.

264. *Chairman.*] You have examined the two harbours of Cork and Waterford?—Yes.

265. Which do you consider the most approachable at all times of the tide?—Cork, undoubtedly; you could not get into Waterford with a vessel drawing more than 15 feet of water, at low water in bad weather.

266. Does that go as far as up to the town of Cork, or merely into the harbour?—You go into Cove.

267. Mr. *Miles.*] What water does one of these steamers draw?—Thirteen feet; if an iron boat, she would draw only 11 or 11½ feet. I surveyed Waterford harbour by order of the Treasury, and I found there was a foot more water than is found in the charts, and that is the reason I recommended the packets to go to Waterford quay.

268. *Chairman.*] Do you consider the two ports of Cork and Waterford equally

equally eligible for vessels of the class adapted to this purpose?—Yes, quite so; first class vessels would go in very easily, especially iron steamers; they would have more speed, and are better calculated for the harbours.

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Veneris, 22° *die Aprilis*, 1842.

MEMBERS PRESENT.

Captain Berkeley.	Mr. Octavius Morgan.
Lord Emlyn.	Mr. Murphy.
Sir R. Ferguson.	Sir Denham Norreys.
Mr. Grogan.	Mr. Reade.
Mr. W. Johnson.	Mr. J. H. Vivian.
Mr. Miles.	

LORD INGESTRE, IN THE CHAIR.

Captain *George Evans*, R.N. called in; and further Examined.

Captain *George Evans*, R.N.

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269. Mr. *Vivian*.] YOU are well acquainted with Milford Haven, are you not?—Yes.

270. And with the navigation of Milford Haven?—Yes.

271. Is there any difficulty in the navigation to Hobb's Point at any state of the tide?—No. It was I who recommended packets to go there, and it was at my proposal the pier was built at Hobb's Point; I was the officer employed on that occasion.

272. Then, under any circumstances, as at dead low-water, would there be any necessity for casting the line in running up to Hobb's Point, or any difficulty in the navigation?—Certainly not, or I would not have recommended it as a station. I recommended the packets to go there after having carefully surveyed it.

273. As the most eligible station for packets to the South of Ireland?—Yes.

274. Lord *Emlyn*.] Is there any difficulty in getting to the pier in any weather?—There ought to be no difficulty.

275. And you could get off at any time?—Yes.

276. Mr. *Morgan*.] We have understood the present boats are very inefficient?—Yes; I found them so at that time, and I believe they are so still, though I recommended different vessels to be employed.

277. What sort of vessels did you recommend?—I recommended vessels of from 500 to 600 tons, and from 250 to 300 horses' power, that being the most exposed station of any in the kingdom.

278. What would be the average duration of the passage to Waterford with good boats?—I should think the average, all the year round, would be 12 hours from Hobb's Point to Waterford Quay, with vessels of from 500 to 600 tons, and from 250 to 300 horses' power.

279. Lord *Emlyn*.] Are you aware whether every accommodation is given to passengers on board those packets now?—The packets are too small to accommodate passengers; in a heavy sea it is impossible they can accommodate them; it requires a larger vessel.

280. Alluding to the comforts of passengers, do you know what they are supplied with?—They had not anything like the comfort those vessels have now at the time I was there; in fact, so few passengers went that they did not think it worth while to carry provisions.

281. Mr. *Vivian*.] Were there so few passengers owing to the want of accommodation, or so little accommodation because there were so few passengers?—It might cut both ways; I should say, if you give the public accommodation they will go with you.

282. Sir *Denham Norreys*.] Are you acquainted, generally, with the currents and the navigation of St. George's Channel?—Pretty generally.

283. Supposing

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283. Supposing that between Holyhead and Kingstown a vessel were able to make 10 miles an hour upon an average, what should you expect her average speed to be from Lundy to the South of Ireland?—Taking the same vessel under precisely the same circumstances, about eight miles an hour.

284. You would calculate, then, upon a considerably greater exposure to weather between Lundy and the South of Ireland, than between Holyhead and Kingstown?—Yes.

285. So great as to make a difference in the average of two miles an hour?—Yes, in the winter months.

286. Taking the average of the year, what should you say would be the difference?—In the summer months it might make a difference of a mile an hour, but in the winter about two miles an hour.

287. Then you think there would be a difference in the voyage between the Bristol Channel and the South of Ireland, as compared with the voyage between Holyhead and Kingstown, of two miles, as against the southern?—As against the southern there would he at the time the vessel is exposed to the Western Ocean, but not the whole way.

288. From the mouth of the Channel?—From the mouth of the Channel to any port in Ireland, I should say the same vessel which would average 10 miles from Holyhead to Kingstown would not average more than eight miles. I consider two miles an hour to be the average difference; one is in smooth water, comparatively speaking, and the other is exposed to the swell of the Atlantic Ocean, with the prevailing winds.

289. Then you would consider the deviation from what would be the average passage would be greater upon the southern passage than it would be from Holyhead to Kingstown?—Yes, for the reasons I stated; the greater exposure to the weather, and the opposition the vessel would meet with from sea and wind.

290. Supposing it were a voyage of 60 miles from Holyhead to Kingstown, and that the voyages averaged from six to nine hours, that is, taking one half for the deviations, what should you expect to be the deviations for a voyage of 120 miles, between South Wales and the South of Ireland?—That is double the distance; and as I gave a less average, namely 8 miles an hour, for the greater exposure to the weather, the ratio would be the same in the end, because supposing the one of six hours to take nine occasionally, then the one of 12 hours would take 18.

291. Supposing the variation in the passage from Holyhead to Kingstown, which you have taken at 10 miles an hour, was from six hours to nine hours, for a passage of double the distance, or 120 miles, between Bristol and the South of Ireland, would you not expect a greater variation than in proportion to the variation in the smoother passage?—I allow for that in my average rate. If I take two miles an hour off, both vessels heing exactly the same, I consider then that I bring the two exactly to an equality, and that there can be no more variation in the one than in the other, as the 10 miles an hour might be stopped as easily as the eight miles in the other, because a vessel going eight miles an hour is not so likely to he checked up to six as a vessel going 10 miles an hour to be checked up to eight; and I should say they would still bear the same comparative proportions. The average ratcs heing eight and 10, the detention by contrary winds and heavy gales would be in the same ratio.

292. Do you consider, then, that the probability of irregularity cannot be measured hy proportionate distances?—Certainly not, at sea.

293. That the probability of irregularity would he greater than in proportion to the distance hy sea?—It would, particularly in the case stated; because the one is not only a longer sea voyage, which always increases the irregularity, but it is also a more exposed voyage, and consequently the irregularity of the length would be much greater, and for that reason I gave a less average by two miles an hour, to allow for the greater irregularity which would take place. There would be many days in the year, taking the same sized vessels, in which the one would go as quick as the other, and therefore that would allow for one more exposed heing detained considerably more in the winter months than the other.

294. Consequently you have taken into consideration the greater probability of irregularity in the one case than in the other?—Certainly; the longer all sea voyages are the more irregular will they be.

295. Have

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295. Have you commanded a steam-vessel yourself?—Yes; I was the first naval officer that ever commissioned one as a man-of-war, and I have been in them almost ever since.

296. Have you watched the progress of steam navigation?—Yes.

297. Do you find that in the progress of steam navigation any very great improvements have hitherto been made?—Yes, several.

298. To what amount of increase of speed should you say those improvements have advanced?—When I first commissioned a steamer eight miles was reckoned very fast work.

299. In what year was that?—In the commencement of 1827 I commissioned a man-of-war steamer. That speed has now been actually doubled by iron boats.

300. Can you refer to any recognized line of steam-packets in which the average speed has increased in that proportion during that period?—Yes; down the River Thames it has.

301. Is not that attributable to the form of the vessels?—Very much so, and also to the great improvements in the engines.

302. Would that same form be applicable to sea voyages?—Not exactly; with a little modification it would.

303. Can you state whether, taking the earliest periods of the Holyhead and Dublin passages and the present period, there has been an improvement of speed equal or at all approaching to the improvement you have stated to have taken place?—No, not in sea boats; my observation related to river boats.

304. What should you say was a fair average rate of speed to calculate upon for a good vessel which would have to encounter such seas as a vessel between the Bristol Channel and the South of Ireland?—Eight miles an hour.

305. Would you consider that any man could calculate upon an average of more than eight miles an hour for a steamer upon that voyage, considering the difficulties of the navigation?—I consider eight miles an hour a very fair average for that voyage.

306. And between Liverpool and Dublin, what would you give?—I should give 10 miles an hour. As I said before, I give two miles an hour difference between a vessel working in smooth water and one that is exposed to the wind, tide and sea.

307. Where do you commence the eight miles an hour?—I should commence the eight miles an hour at the Nash Point.

308. Mr. *Murphy*.] Did you not state on a former occasion which harbour was more easy of entry, the harbour of Cork or the harbour of Waterford?—Yes; I said that Cork was the more easy; the reasons are, that there is no bar at Cork, and it is a good landfall, good high land, and the entrance is very easy of access; all men-of-war, even three-deckers, can get in and out of Cork.

309. At night?—Yes, at night as well as in day.

310. Should you consider that in a fog, at the entrance to the harbour of Waterford, the difficulties of the navigation are much increased by the bar?—A bar harbour will always increase the difficulty of the navigation in a fog, for then you cannot run with impunity on either side; you must go over that part of the harbour which is navigable, and if you are out of sight of land, you must pick out your way by the lead.

311. Would it not be a matter of great danger to try to cross that bar in a fog?—If it were blowing a gale of wind, with the sea right in, and a man did not know exactly where he was, it would be dangerous to run in; but if you get a sight of the lighthouse, or anything by which you can steer a steady course, you can get in easily enough.

312. I am assuming a fog?—I should be sorry to run into Cork Harbour in a fog.

313. Would not you be more sorry to run into Waterford Harbour?—If it were a thick fog I should be sorry to run near the land anywhere.

314. Mr. *Reade*.] Before you come to Waterford bar, you pass two lighthouses?—Yes, you have two very good lighthouses.

Mr. *George Stow*, called in; and Examined.

Mr. *George Stow*.

315. Mr. *Vivian*.] AT what hour does the London mail arrive at Bristol?—At five minutes past one a. m.

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316. At what hour is the Pembroke mail dispatched from Bristol?—At six in the morning.

317. What is the cause of the delay of the mail five hours in Bristol?—That is in consequence of the objection on the part of the contractors to take it on at an earlier hour; that is one reason; and the other is, the expense which would attend taking it across the Passage at that early hour in the morning.

318. Is there any other instance in the kingdom of a mail upon a principal line of road being detained five hours?—I am not aware that there is; there is another reason, and a very important one in the opinion of the Post-office, that is, that if the mail were sent away at an earlier hour from Bristol, it would get on to Chepstow and be sent from Chepstow before the letters from the North of England would reach Chepstow, so that all the letters between Chepstow and Milford from the North of England would be thrown back 24 hours.

319. What is the distance from Chepstow to Gloucester?—I think 28 miles.

320. Then at Gloucester the letters meet the line of railway communication from the North?—Yes.

321. There is a line of railway from Gloucester to Birmingham, and from Birmingham to Liverpool and Manchester?—Yes.

322. Then, could you not arrange the time of the arrival of the letters from the North at Gloucester, so that they would be brought to Chepstow to meet the down mail at an earlier hour?—That could only be done by dispatching from every part of the North of England so much earlier, from Liverpool, Manchester, and all parts of the North, and from Scotland.

323. But I understand from Liverpool to Birmingham there are several mail trains in the course of the day?—There are three; the regular London day mail train, the night mail train, and a local train between Liverpool and Birmingham only.

324. Could not an arrangement be made by which the accommodation of an earlier delivery could be afforded?—It might be made if you chose to sacrifice Scotland and the North of England, by delaying the northern letters for the Welsh road; you could not do it without.

325. Mr. *Morgan.*] At what time do the northern letters arrive at Gloucester?—At 14 minutes past three a. m.

326. At what time does the London mail arrive at Gloucester?—They both arrive at the same time.

327. The London mail to Gloucester goes on from Gloucester by Monmouth to Milford Haven?—Yes.

328. Then does it not take on the northern letters also?—Yes.

329. Then could not the Gloucester mail proceed from Gloucester by Chepstow, so as to open a communication with London, through Gloucester, to Chepstow and Newport?—There is no doubt of it.

330. Would any time be gained by that?—Yes; I am not prepared to state exactly what, but I believe an hour.

331. Mr. *Vivian.*] That is, supposing the London letters were forwarded from Gloucester to Chepstow?—Yes, supposing the Pembroke line were through Gloucester; and I should state, the late Postmaster-general decided to serve that line by way of Gloucester, and a mail was advertised for by that line of road, but no tenders were received, and we were obliged to resort to the Bristol line again.

332. Mr. *Morgan.*] What was the reason no tenders were received?—I cannot say.

333. What were the terms offered?—We advertised for a tender for a mail-coach.

334. No specific terms were mentioned?—No; we gave the party on the Pembroke line notice to quit, and advertised for a mail by Chepstow, and got no tender for it.

335. When was that?—I think about September last. The contract was to expire on the 5th of April.

336. Would the London letters arrive at Chepstow at an earlier hour by way of Gloucester than by way of the Passage?—Yes, I think an hour.

337. And they would not be subjected to the delays and inconveniences of crossing the Severn at the Old Passage?—Certainly not.

338. Mr. *Morgan.*] If the passage across the Severn were to be improved, and proper piers to be erected, and proper steam-boats to ply, what time would be

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be gained between Bristol and Newport, or Bristol and Chepstow?—There would he no difficulty then in the mail going away from Bristol within an hour or half an hour of the arrival of the London train. We might go away at two o'clock a.m. without difficulty; but then you would get to Chepstow before your north letters could get there, and consequently all those letters for the Pembroke line would be left behind, unless you had a second conveyance.

339. Do not those north letters go by Bristol?—They go by Gloucester, and from thence to Chepstow.

340. Mr. *Vivian.*] Would it not be a great convenience to that line of country, if there were a mail-coach employed from Gloucester to Chepstow?—For passengers, undoubtedly it would he.

341. And it would save an hour in the delivery of the letters, on the present arrangement?—It would.

342. Mr. *Grogan.*] Do the northern letters, to anywhere, pass through Gloucester?—Yes.

343. And what is the difference of time between the arrival of the North of England letters and the London down letters at Gloucester?—They arrive at the same moment; they are taken in by the same train at Cheltenham.

344. Then if there were a mail to run direct from Gloucester to Chepstow, would it not carry the North of England letters?—Yes, it does so now.

345. Mr. *Vivian.*] At what hour does the mail arrive from Gloucester at Carmarthen?—At 45 minutes past three p.m.

346. At what hour does the mail arrive from Bristol, through Swansea, at Carmarthen?—At 17 minutes past seven p.m.

347. And the Pembroke mail cannot be dispatched from Carmarthen until the arrival of the Bristol mail?—Certainly not.

348. And therefore the letters are detained at Carmarthen waiting the arrival of the Bristol mail?—Yes, that is the fact.

349. Mr. *Morgan.*] If I understand you right, you state the cause of this delay is the waiting for the arrival of the northern letters?—Yes; exactly so, at Chepstow.

350. Mr. *Vivian.*] Supposing the Passage were improved, you state the mail could be dispatched four hours earlier than at present, that is, at two o'clock, from Bristol?—I think so.

351. There would be no difficulty in crossing the Passage, provided proper landing-places were made there?—No.

352. The mail through Swansea would then arrive at Carmarthen rather before that from Gloucester?—Yes.

353. And consequently three hours would be saved in dispatching the Pembroke mail from Carmarthen?—Precisely so.

354. Are you acquainted with the Old Passage?—I have been over it several times; but not within these three or four years.

355. Considerable improvements have been made there, I believe, by the Ferry Company that is established there?—I cannot speak from my own knowledge, within the last three or four years.

356. Do you know at all what they would require to enable them to land at all states of the tide?—No, I do not.

357. The Post-office have a contract with the Aust Ferry Company, I believe, for the conveyance of the mails over the Passage?—Yes.

358. Is it provided for in that contract, that the mail should be conveyed by steam?—It is the understanding that they are always to be conveyed by steam, when practicable.

359. Is not the mail very frequently conveyed by an open boat?—Frequently.

360. Is there not a very strong run of the tide at the Old Passage?—There is.

361. Did the Ferry Company propose, upon the renewal of the contract last year, to convey mails across in the night?—They offered to convey the mails at any hour of the night, not by steam-boats, but good sailing boats, with a proper complement of men.

362. Provided a landing-place were made there, would there be any difficulty in conveying the mail across at any hour of the night, by a steam-boat?—I should say not.

363. Then more convenient landing-places are all that they require to enable them to convey the mail across at any hour of the night, in a steam-boat?—I should

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I should say so, but I am not competent to give a nautical opinion upon the subject.

364. Mr. *Morgan.*] You have spoken of the necessary delay of the mail by waiting for the northern letters?—Yes.

365. Now, if the mail to Ireland were to sail from Bristol, only not going through South Wales, it must also wait for the arrival of the northern letters? —Just so.

366. Then the mail to Ireland from Bristol, by a steamer, could not start earlier than it can start now, going through South Wales?—It could not start so early if the mail, including the northern letters, was to be made up at Bristol, because there would be all the distance to do between Gloucester and Bristol. If you convey the Irish northern letters to Bristol, there would be 36 miles more to do by coach.

367. Then more time is saved by the present conveyance?—Yes.

368. Mr. *Miles.*] That would not be the case when the railroad is established from Gloucester to Bristol?—Not to the same extent.

369. Mr. *Morgan.*] There is more time, you say, saved under the present arrangement than if the mail to Ireland were to sail directly from Bristol?—If you intend to combine the northern correspondence with it, and to bring that correspondence into Bristol, there is more time saved by the present arrangement.

370. And if the mail were to start from Bristol or Portishead, all the letters must be brought into Bristol?—Yes.

371. Then if the communication were to be improved across the Passage, the road through South Wales improved, and the delay at Carmarthen obviated, more time would he gained in that way than hy the transmission of letters direct from Bristol to Ireland by water?—No; unless you expedited the mails from the north you could not get them into Gloucester quicker than they are got now. They must have a certain time to go to Chepstow, and you cannot go from Chepstow at an earlier hour than at present.

372. At what time does the mail-cart arrive at Chepstow?—At half past seven.

373. And the mail, starting from Bristol at six, arrives at Chepstow at half past seven too?—Yes.

374. And it is not possible to expedite that, in consequence of the time at which the northern letters arrive?—No; I believe they could get away an hour earlier from Gloucester, but that is the utmost.

375. Then if the mail started earlier from Bristol there would be no time gained?—No time would be gained if you bring the northern correspondence into Bristol; if you decide to go away without the northern correspondence, there is no reason why they should not go away at two o'clock. That has always heen the difficulty.

376. Mr. *Reade.*] That applies equally to the packet communication from Bristol to Ireland, and through South Wales?—Yes.

377. Mr. *Morgan.*] You would gain nothing, then, in point of time hy the change of communication?—No, I apprehend not.

378. Mr. *Vivian.*] What would be the case as regards the correspondence between South Wales and the South of Ireland; what would he the time occupied in transmitting the letters from South Wales to Waterford by the present conveyance, or in sending them by Bristol, supposing the packets were removed from Hobb's Point?—That would entirely depend upon the time it was decided to start the packets from Bristol. In that case your Irish letters from Swansea, instead of starting hy the down-mail from Swansea, would come up and remain at Bristol all night until one or two o'clock in the morning.

379. What is the time the mail requires to go from Swansea to Milford Haven at present?—Seven hours and a half.

380. And what is the time that is required to go from Swansea to Bristol at present?—Nine hours and 54 minutes.

381. Then a letter from Swansea to the South of Ireland would be at Milford three hours before it would be at Bristol, as it would require seven hours to go to Milford, and nine hours and 54 minutes to go to Bristol?—Yes.

382. Consequently, supposing the passage could he effected in eight hours from Hobb's Point to Waterford, it would require only 15 hours to send a letter from Swansea to the South of Ireland hy Milford?—Yes.

383. And

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383. And it would require 10 hours to bring the letters to Bristol, and then they would be subjected to a sea passage of 22 hours?—Yes.

384. In the one case to a sea voyage of 90 miles, and in the other to one of 173½ miles, and a difficult navigation?—Yes.

385. I believe Swansea is a place of considerable trade and communication with Ireland?—Very great, I have understood.

386. Mr. *Reade.*] If that applies to Swansea, it would apply still more strongly to Llanelly, and all places to the west?—It applies still more strongly to all places to the westward of Swansea.

387. There would be the same difference, of course, in the case of a letter coming from Ireland to Swansea?—Yes.

388. Mr. *Vivian.*] And, consequently, we may state in round numbers, that it would make about two days' difference in the correspondence between Glamorganshire and the South of Ireland, in writing and receiving an answer?—I am not prepared to state the exact difference.

389. Are you acquainted with Hobb's Point?—I have been there; that is all I can say.

390. I believe a considerable expense has been incurred to make that a very complete packet station?—Yes.

391. And its proximity to the dock-yard is a great convenience?—Undoubtedly.

392. And there is sufficient depth of water within the pier to float steamers at any state of the tide?—I believe so; but I am not prepared to give an opinion upon that point.

393. In fact, nothing is required at Hobb's Point to render it a fit and efficient station for packets?—I believe not.

394. Mr. *Corry.*] If the packet establishment is transferred from Milford to Bristol, would the most expeditious way of forwarding letters from Swansea to the South of Ireland be from Bristol to Dublin, through Liverpool, and so on to Waterford?—Without knowing exactly the time at which the packets would leave Bristol, I could not answer the question. I should think it very questionable whether the north would not be the quickest way.

395. Mr. *Vivian.*] How many hours would it take to forward letters from Swansea to Gloucester, supposing they were to join the railway at Gloucester?—About 12 hours.

396. Then a letter from Swansea would be at Milford five hours sooner than it would be at Gloucester?—About five hours.

397. And from Gloucester it would have to be forwarded by the railway to Liverpool, and from Liverpool by the steamer to Dublin, and from Dublin to travel over a macadamized road to Waterford and Cork?—Yes, it would.

398. Mr. *Grogan.*] You have used the term "North of England letters" very frequently; what letters do you include in that?—Letters coming from Liverpool, Manchester, and parts of the north, Scotland, &c.

399. Do letters from Liverpool to Cork and Waterford go to Dublin, or by Milford?—To Dublin.

400. Do you include in the term "North of England letters" all to the southward of the mail line to Dublin?—I believe all the North of England letters for Waterford would circulate by way of Liverpool; but when I used the term "North of England letters," it was more with reference to the Pembroke line, and the whole of South Wales, many of the towns of which are very important; and our difficulty has been, that in altering the line you throw out the North of England letters.

401. Then the North of England letters, properly so called, to the South of Ireland, go through Dublin?—Yes; I think it will be found that all the North of England letters go through Liverpool to Dublin.

402. Then, taking the district of country north of the main line from Dublin to London, the letters go by Liverpool and Holyhead, and to the south by Gloucester and Pembroke; now there is a large tract of country in South Wales; generally speaking, taking any town, Aberystwith for instance, how do letters go from that district to the South of Ireland; do they go by Milford or Bristol?—The whole of the Pembroke line would go by Milford.

403. Mr. *Reade.*] Supposing a letter from Hereford, how would that go to the South of Ireland; would that go by Milford?—I think it would.

404. Mr. *Morgan.*] You may say all the letters from Monmouthshire, Bre-

conshire,

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conshire, Glamorganshire, Pembrokeshire, Carmarthenshire, and Cardiganshire, would go by Milford?—Yes.

405. And also from Herefordshire and Gloucestershire?—Yes, all to the west of Gloucester would.

406. Mr. *Miles.*] Would not Bristol be a very central place as the depôt for dispatching all the Irish letters from the north, from London, and from the south and south-west?—I apprehend it would, with the exception of those from the north.

407. A great part of the correspondence from the South of England would also go through Bristol?—Yes, and the West of England.

408. They would all go through Bristol to whatever part of Ireland they went?—Yes.

409. Mr. *Vivian.*] Should you say Bristol would be a central spot for collecting the Irish letters from South Wales?—Not from the Pembroke line, unquestionably.

410. Mr. *Morgan.*] Would it not be a great convenience that there should be two communications with Ireland, one, of the northern letters through Liverpool; the other, the southern letters through some central part of England which would communicate directly with the South of Ireland?—No doubt of it.

411. Is it not in consideration of that convenience that Milford has been employed by the Post-office as the channel of communication for the South of Ireland?—I apprehend that formerly Milford was the most direct communication with the South of Ireland, but the railroads have given us an opportunity of getting to the South of Ireland quicker than by Milford.

412. Mr. *Murphy.*] I wish to ask whether, under existing circumstances, the result does not show, that letters going from Bristol to Cork by Liverpool, reach Cork one hour and 37 minutes before letters going from Bristol to Cork by Milford?—Yes, that is so.

413. Now, having stated that the reason of the change was the great facility afforded by railroads, give me leave to ask you whether, in your judgment, you do not conceive that, supposing the line of communication was to be from any port in the Bristol Channel, with the facilities the railroads give there, if a better class of steamers were employed to communicate between Bristol and the South of Ireland, that celerity and facility would be very much increased?—No doubt.

414. I wish to ask you what would be the difference, in your judgment, in the transmission of letters to that part of Ireland which lies to the south-west of Cork, taking the district of Bandon, Bantry, and all round there; would not their facilities be much improved in the way of Post-office communication, if the transmission of letters was by Cork, and not by Waterford?—It is difficult to give an opinion off-hand upon that, because, if it were decided to alter the packet station, we should fit our mails accordingly.

415. I wish to ask you, moreover, whether, in your judgment, the communication with Limerick, which forms a very important central portion of Ireland, would not be very considerably improved by having a communication from Bristol to the South of Ireland rather than through Dublin?—I am not prepared to state without referring to the office map, and ascertaining the circulation through Bristol and Dublin to the South of Ireland.

415*. *Chairman.*] Some observations have been made about the Swansea letters; have you any means of telling the quantity of letters which have gone from Swansea by the Milford Packet?—No.

416. Can you state whether it has ever happened that the Milford Packet has sailed without any letters at all?—I have not heard of it.

417. Have you ever heard of their going with very few?—I have not heard of it, and it is not probable that I should hear of it. I consider my business done when I get the mail-coach down to Milford.

418. You can give no information as to the quantity of letters that go?—Certainly not.

419. It was mentioned the other day, that if the packet station were to be altered to Bristol, steam-packets would be established either from Newport or Cardiff to Bristol. I wish to ask, in that event, whether the letters from that point would not get to Ireland as quickly as by the existing system?—That would depend entirely upon the time you started your packets from Bristol.

420. Supposing the Bristol packets to be started on the arrival of the down mail

mail from London, the night mail or the day mail, in one case it would be at two a. m., in the other about two p. m. What I wish to ask you is, whether, taking Newport and all the towns in that district, they would not rather receive an accommodation in point of time by starting from Bristol than the contrary?—That would depend on what time it would take in going from Newport to Bristol, and from Bristol to Waterford.

421. In your apprehension, supposing the packets to be established from Bristol, and looking at the regularity of the communication to the South of Ireland from London, do you think it would be a greater accommodation that the packets should be made to fit the day mail instead of the night mail?—I do, rather than starting in the middle of the night, and I think it would be a great accommodation, particularly to all the towns west of Bristol, because the western mails work into Bristol at three o'clock in the afternoon.

422. How would that fit what you call the North of England letters?—It would not fit them at all; they would reach Bristol between seven and eight o'clock in the morning. There is no mail fitted to the day mail to the North.

423. Do you think there would be any loss to the letters coming from those districts by waiting till four p. m. and having a 20 hours' passage?—It does not appear to me there would.

424. And it would be a great advantage to the South and West of England?—Yes; the northern letters in fact would not circulate that way; they would go by Dublin; having three communications between Birmingham and Liverpool daily, they would go that way.

425. What district do you think would receive an advantage if packets were established to start daily from Bristol, to fit the day mail from London?—I think the dispatch from Bristol at four o'clock would be most advantageous; it would embrace the whole line of country from Portsmouth to Bristol, and it would embrace everything from Falmouth and from the Land's End; and all Somersetshire and the North of Devon.

426. It would establish a communication between all the ports in the British Channel and St. George's Channel?—Yes; which would be the more important, as the communication from the West of England is insufficient at present.

427. Sir *Denham Norreys.*] Supposing as perfect a line of communication as could be made between Bristol and the South of Ireland were established, how do you think a letter from Southampton would be sent to the South of Ireland?—By way of Bristol.

428. How would it have to come to get to Bristol?—It would reach Bristol by the Portsmouth mail. There would be a delay, I admit, of several hours, inasmuch as that mail reaches Bristol at eight in the morning, and the letters would not go on until four in the afternoon.

429. In point of time, would a letter be sent most expeditiously from Southampton to the South of Ireland by Milford, by Bristol, or by London?—By Bristol.

430. Supposing a letter put into the Southampton Post-office at noon on any day, at what time would it arrive at the port in the South of Ireland, allowing for a passage of 20 hours?—A letter put into the post at Southampton one day at noon would miss that day's dispatch at present, but if a packet were established at Bristol to start at four o'clock, we should most probably fit a mail to it.

431. How many mails are there from Southampton to London each day?—Two, night and day.

432. Then letters from Southampton to the South of Ireland by London would go twice a day?—Yes.

433. In how many hours would it arrive in Dublin by way of London?—In 29 hours.

434. *Chairman.*] Southampton is now the great depôt for letters from the West Indies?—For packets; not for letters.

435. Are all the letters sorted at Falmouth?—Yes.

436. Then would letters coming from the West Indies to the South of Ireland derive an advantage by a packet being established at Bristol, whether they came from Falmouth or Southampton?—Yes, they would, of course, by packets starting at four o'clock, because they would reach there by the direct mail from Falmouth before that time, or from Southampton, if a mail were fitted to the four o'clock despatch.

437. And supposing arrangements were made that the mail should be landed at

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at Southampton, would they not derive a great advantage from that arrangement?—That would depend upon the time they started from Southampton.

438. Mr. *Vivian.*] When you speak of Bristol as the point of departure, you assume that Bristol affords the facility of steam-packets starting from thence at any state of the tide?—Of course; I understand that Portishead was the point.

439. With respect to the communication across the Channel; in your Post-office arrangements do you not consider it very desirable to avoid water communication as much as possible?—Decidedly.

440. Have there not been complaints from South Wales of the conveyance of letters from London going by the Old Passage?—Frequently.

441. And would not those complaints be probably greater if the communication with South Wales was from Bristol to Newport, or any other port in the Channel?—I think the complaints have generally been in consequence of the bags and passengers being conveyed in open boats. We have had no complaints, that I am aware of, when they have been conveyed in steamers.

442. Would not the plan proposed entail the construction of a new port on the Welsh side, as well as the Bristol side?—Yes; I believe so.

Captain *George Burgess*, called in; and Examined.

Capt. *G. Burgess.*

443. *Chairman.*] ARE you Commander of a steamer plying between Bristol and Waterford?—Yes, the Osprey.

444. Have you commanded her long?—I have commanded her 16 months.

445. Had you been acquainted with the passage before that?—I had been acquainted with the Bristol Channel and the coast of Ireland generally.

446. In the event of a port being made in any part of the Bristol Channel which steamers could come in and go out of daily at all times of the tide, do you conceive a steamer could perform her passage to and from the South of Ireland with regularity?—I think so; my vessel has two 90-horse engines; she is not a fast vessel, but a very fair vessel, and very burdensome, and I only missed three tides in the last twelve months. We sailed from Waterford at high water, and we did not get to Bristol next high water; we did not get in until the next. We miss it if we do not get in in 26 hours. We frequently get in in 19, and anchor at Kingroad until the tide goes up, or go slow up the Channel.

447. Are you not obliged to take a longer time for want of a landing-place to run into?—We load with stock, and we must land them at Bristol Quay.

448. Supposing a place for a mail boat were made, would not the average be much less?—Yes; I have frequently anchored in Kingroad in 18, 19, and 20 hours, and frequently slowed our engine up the Channel when too soon on tide.

449. What should you say has been the average of your passages each way, from Kingroad to Waterford, and Waterford to Kingroad?—I think about 24 hours.

450. In striking that average, does it not appear much more from having slackened your steam when making a good passage?—Yes, certainly; but for that it would be less.

451. You prefer slackening your steam to lying at anchor in Kingroad?—Yes; we seldom anchor there; we do not anchor there perhaps twice or three times a year.

452. Have you ever been delayed in making your passage up the Bristol Channel by the weather?—Never.

453. Have you come up the Bristol Channel in all weathers, and in dark nights, when there was no moon?—Yes, and I have never put into any port in the Bristol Channel since I have commanded the Osprey coming from Waterford.

454. Will you let the Committee know what your opinion is as to the access up the River Suir?—I think it is practicable to take the river at all times; it is better to take it by day; I have taken it by night. There is some risk in taking it by night, but that would be remedied if it was a mail packet without a cargo, of lighter draft of water than mine.

455. You think there is no difficulty as to the navigation?—There is none.

456. Is there a sufficient quantity of establishment as to lighthouses?—Yes; I consider the Hook Lighthouse as good as any in the kingdom.

457. And

457. And there is another at Dunmore?—Yes, and if it is foggy weather you can see the Dunmore Light.

458. Have you ever been prevented going to the Suir whenever you have arrived?—Never.

459. Have you arrived at all times of wind and tide?—Yes; and at all times of night.

460. And you have never been delayed for want of water?—No.

461. Has it ever happened to you to be abreast of Milford at the time of the Milford mail coming out?—Yes, frequently.

462. Which of you have got into Waterford first?—I have generally beat them eight or ten miles.

463. Is that from the superiority of your vessel, or because it is a better line?—From the power of engine I have. There is but one vessel on the Milford station can steam with me, and she can only do it in fair weather; I can beat any of them in bad weather.

464. With a cargo in?—Yes; I frequently beat them eight or ten miles with 700 head of pigs in.

465. Have you any acquaintance with the passage to Cork?—I have been to Cork.

466. Which, in your opinion, would be the most practicable passage; from Bristol to Waterford, or from Bristol to Cork?—I think the passage might be made to Waterford when it would be difficult to make it to Cork; at least it would be many hours longer, from the prevailing north-west winds.

467. State the reason why?—The Waterford vessel getting under the Irish land, gets into smooth water very soon.

468. Would a vessel going to Cork have to stem the sea with the prevailing winds in the Irish Channel, more than one going to Waterford?—Yes.

469. What do you consider the prevailing wind?—West-north-west.

470. Supposing two steamers to sail every day, one to Waterford and one to Cork, which should you think, with the prevailing wind, would be able to carry sail the greater number of days?—I do not think there would be a great deal of difference.

471. Which would have a fair wind more?—I think there would be very little difference.

472. In stating the prevailing winds, have you stated it as the wind by compass, or the true wind?—The wind by compass.

473. In your opinion you think there are times when a vessel would get to Waterford, when she would have great difficulty in getting to Cork?—Yes; with blowing weather a vessel would be many hours in Waterford before she would be in Cork, because a vessel going to Cork would have no shelter from the land.

474. Mr. *Grogan.*] In making Waterford from Bristol, are you obliged to stand further to sea to avoid the rocks upon the southern part of Ireland, or can you strike off at once?—Yes, I strike off at once from Waterford Harbour to Lundy Island.

475. *Chairman.*] What land do you make coming from Waterford?—I make the Smalls, if it is clear, if it is possible; it must depend upon the tide, whether you go through the island, or make the Smalls. I frequently see no land until I see the high land of Devonshire.

476. Do you find any difficulty above the Holms?—None whatever.

477. Are you acquainted with Brean Down?—Yes, I know it.

478. Which should you consider the preferable station for a harbour, Brean Down, or Portishead, looking at it as a harbour, and also for the facility of getting in and out at all times?—If it was practicable to make a harbour at Brean Down, you would save 18 miles of steaming in foggy weather; but a heavy sea breaks upon Brean Down, which makes it impracticable, I think.

479. What wind is Brean Down exposed to?—It is exposed to the wind from the west-south-west all the way round to north-north-east, or north-east.

480. Are you acquainted with any fast steamers?—Our Dublin steamer is a fast vessel.

481. I do not mean trading vessels, but mail boats?—I am acquainted with all the vessels which sail out of our port.

482. What do you consider a fast vessel built for carrying the mails, without cargo, of 600 tons, and 250 horse power, could average from Brean Down to Waterford,

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Waterford, and back again, all the year round?—I think she would average between 18 and 19 hours.

483. Mr. *Reade.*] What would she average from Portishead?—About an hour, or an hour and a half more.

484. *Chairman.*] What would you give as the average from the same point to Cork?—In any case you may add four hours more to Cork in fine weather.

485. And in bad weather?—In bad weather you must add six or eight, because it is all steaming against wind and sea.

486. Under the most favourable circumstances, you would say four hours more?—Yes.

487. Sir *Denham Norreys.*] What has been your shortest voyage from King-road to Waterford?—Eighteen hours.

488. What has been the longest?—The longest, steaming all the time, is 32 hours from Bristol Quay to Waterford Quay.

489. How long have you been getting from Bristol Quay to Waterford Quay, on the longest voyage?—The longest voyage has been 50 hours.

490. Was that during the last year?—Yes, it was.

491. How many times during the last year have you been 50 hours?—Once.

492. How many times have you been 40 hours and over?—None at all; I have been 38 hours once, and 35 hours once.

493. Those were your longest voyages in the last year?—Yes.

494. You have stated your average is 24 hours, and you have also stated that only three times during the last year have you missed your tide?—Yes.

495. What number of hours does that leave of deviation from the 24 hours? — If it is in to Bristol it is always 12 hours.

496. That allows a deviation of 12 hours?—Yes.

497. So that, taking your average at 24 hours, you have only been three voyages in which you have deviated as much as 12 hours?—Just so.

498. What answer would you give in respect of the back voyages?—In the back voyages I have put in three times from bad weather.

499. Have you in the times you stated you were 35 hours, 38 hours, and 50 hours, included the time you were actually at anchor or in harbour?—When I was at anchor is included; it was half the time when I was 50 hours.

500. Do you know the Liverpool and Kingstown packets?—I do not.

501. Have you heard they are a good description of packets?—I have.

502. Do they bear that character in the service?—Yes, and I have made passages from Bristol when they failed to make theirs from Liverpool; I did so not a month since.

503. If you find by a return such as that put into your hand, that there are so many as 50 or 60 voyages between Liverpool and Kingstown, or the reverse, in which the packets have exceeded the shortest passage by one-half, how can you account for your passages exceeding your shortest passage so little as they appear to do by your account?—From the difference in the navigation.

504. You state your average voyage to be 24 hours, adding half to that would be 36 hours; taking the average voyage upon the Liverpool station to be 12 hours, adding half to that would be 18 hours; do you not think that you might expect that you would be at least an equal number of times 36 hours, as the Liverpool and Kingstown packets have been 18 hours?—The whole of theirs is sea navigation; a great deal of ours is river navigation, which makes the difference.

505. Do you think the irregularity with which vessels will arrive by sea comparatively upon different lines can be measured by the distance, or is there not much greater irregularity by greater distance at sea than in proportion to mere distance?—Vessels going coastwise are influenced by the tide, and steamers leaving as we do, always the first of the flood, if it be a spring tide, the tide puts us well down the Bristol Channel.

506. If you were established as a post communication, would it not be necessary to leave at regular hours?—Yes.

507. Would you not then be obliged to start at the most disadvantageous times of the tides?—Yes.

508. Does not your experience as a naval man lead you to this conclusion: that taking the passage of any 60 miles, and the passage of 120 miles, the irregularities of the longer voyage could not be compared with the irregularities of the shorter voyage, as a question of comparative distance; but that the irregularities

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irregularities in the longer distance would be greater in comparison with the irregularities in the shorter distance?—Yes, I think it may be considered so.

509. *Chairman.*] In those long voyages in which you have been delayed, you state you were at anchor a considerable time?—Yes.

510. Are you of opinion that in a well-found steam-ship, such as has been described, there would be any necessity for her anchoring?—No; she may always steam a-head.

511. Sir *Denham Norreys.*] How long have you been acquainted with Bristol?—These 12 years.

512. How long have you heard of any intention of making a pier at Portishead?—I have heard of it ever since I took the command of the Osprey; I am not certain as to the time.

513. What is the velocity of the ebb and flood tides at Portishead?—It is much influenced by the wind.

514. What is the average velocity of the tide there?—It is very much influenced by the wind. When it blows hard to the north and north-west, the tide runs four or five miles an hour; it may run more.

515. From Portishead to where?—From Portishead down round the Islands. I think it runs stronger there than almost anywhere.

516. Taking Portishead down to the Holms, I believe the ebb-tide runs considerably quicker there?—It never exceeds four miles an hour, and is very seldom that, from Portishead to the lightboat.

517. And from thence to Swansea, what is its velocity?—It runs rapidly between the Holms, and decreases to two miles and a half in spring-tides.

518. Then it commences at four or five miles from Portishead to the Holms?—I think it never exceeds four miles, as an average.

519. Suppose you start from Portishead at the commencement of the ebb-tide, how far would that take you?—To Wormshead, in fine weather.

520. How far is that?—Sixty miles; and below Wormshead the ebb of a spring-tide would take me down to Tenby.

521. You would get 60 miles with the ebb?—Yes, and from Bristol considerably more.

522. In about how many hours?—About six hours.

523. I understand you to say, taking the ebb the whole way through, you would get 60 miles in six hours?—Yes.

524. Now, supposing a vessel of equal size and equal power had been at Wormshead just at the commencement of ebb, in the position in which you started, how long would that vessel take to get up to the same point from which you started?—She would not make above three miles an hour, or not so much; two miles and a half; it would depend upon the wind.

525. Then that would make a difference of two miles and a half or three miles an hour?—Not so much as three miles.

526. Two miles and a half an hour for six hours?—Yes.

527. That would be about equivalent to an hour and a half?—Yes.

528. Then the mere question of tide alone would make the difference of an hour and a half in the regularity of the Post-office communication?—That is the difference it makes to me with a loaded vessel; to a vessel going direct it would make less difference.

529. What has been the longest time that you have been, under the most unfavourable circumstances, making from Portishead to Wormshead, with such a vessel as you have?—About 10 or 11 hours.

530. Then between Portishead and Wormshead there must be a variation of between six hours and ten hours?—Yes; when the wind is blowing hard through the Channel they must be delayed until they get the tide with them.

531. Captain *Berkeley.*] I think you stated that there is more difficulty in getting from Bristol to Cork than from Bristol to Waterford, in consequence of the prevailing winds; I wish to ask whether that does not act in the reverse way on the return from Waterford to Bristol, making it easier to get from Cork to Bristol on the return voyage, than from Waterford to Bristol?—No, because the wind that is fair to go from Cork is always fair to go from Waterford, and the passage is shorter.

532. Then how do you make out that there is more difficulty in getting to Cork than to Waterford?—Because you have to go all the distance to Cork in the face of the sea and wind.

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533. That is the reason for there being more difficulty in getting to Cork?—Yes.

534. Then on part of the return voyage to Waterford, have you not to meet that wind?—No; it is a fair wind all the way back.

535. What is your course from Bristol to Cork?—West southerly.

536. *Chairman.*] You have been asked about the tides; now taking the passage from Bristol to Cork, or from Bristol to Waterford, would not the balance of the tides be pretty equal; whether you started at the most unfavourable state of the tide, or at the most favourable, would not the balance be pretty equal?—It would make a little difference, because the ebb-tide runs much stronger up the Channel than it does lower down, and therefore the flood must be the same; and if you start at a young flood, you would have a pretty smart tide to the Holms.

537. In the whole passage would that make any material difference whether you started at the commencement of the flood or at the commencement of the ebb?—It would make a trifling difference, perhaps half an hour.

538. That difficulty, which would make a great difference in the voyage to Wormsbead, would be counterbalanced by having the tide with you afterwards?—Yes.

539. Mr. *Vivian.*] You usually go into Waterford with the flood-tide?—Yes.

540. And leave it at the ebb?—Yes.

541. Then you have the ebb in your favour in going from Bristol, and the flood in your favour in going into Waterford?—Yes.

542. Sir *Denham Norreys.*] When you get to Wormshead, where do you meet the flood?—About Wormshead.

543. How far does the flood take you?—I keep the flood until I get to Milford.

544. How far is that?—About four hours' steaming.

545. At what rate does the flood assist you to Wormshead?—It is against me about a quarter of an hour.

546. In your previous answer you said, the question whether the tide was for or against you would make a difference of an hour and a half between Portishead and Wormshead, and in answer to another question you stated the question of whether tide was for or against you in leaving Portishead would not make a difference of half an hour; will you explain that?—If you were leaving upon the first flood in place of taking the ebb, you would of course have the ebb-tide stronger between the Islands, and we always avail ourselves of going through when the tide suits us, and we should be down there by taking the tide at the flood in time for the ebb.

547. Mr. *Reade.*] Do you know the two ports of Cork and Waterford?—I know Waterford well.

548. What facilities of landing are there at Waterford for passengers, carriages, and so on?—One can drive off a ship's deck with a carriage and four at all times.

549. Could it be improved?—No.

550. Do you know the circumstances of Cork equally, so as to be able to pass an opinion as to Cork Harbour, and the approaches to it?—I am not acquainted with Cork, as far as steamers go.

551. You know the harbour?—Yes.

552. The harbour is as good as can be, and very easily approachable?—Yes; but you cannot get up at all times of the tide.

553. At Waterford you can get up at all times of the tide?—Yes.

554. But at Cork you cannot?—No.

555. When you were asked about the difference of the wind backwards and forwards, you said it was more difficult to make the voyage to Cork than to Waterford?—Yes.

556. Is not that a difficulty rather on account of the rougher water, being more exposed to the Atlantic, and less sheltered; is not that the cause of the great difference?—Yes.

557. Mr. *Murphy.*] Is there not a bar going into Waterford; is it not a bar harbour?—It is a bar harbour, but there is always sufficient water for steamers.

558. It is a bar harbour?—Yes.

559. And

559. And I believe Cork is not a bar harbour?—It is not.

560. Now, supposing you make Waterford at night, does it not require a good deal of nicety, in foggy weather, to keep the navigable point of that bar, so as to get into Waterford?—If it is foggy, certainly.

561. I need not ask you, as an inference from that, whether there is not more danger, contrasting Cork Harbour, which is not a bar harbour, with Waterford, which is, in entering Waterford in foggy weather?—In foggy weather, when a man cannot see the lights, he must anchor outside, or any where he can, and there is, under those circumstances, the same risk everywhere.

562. Do you mean to state, as a nautical man, there is the same risk in foggy weather in going into such a harbour as Cork, where there is not a bar, and where there is a fine headland, as in going into Waterford, where there is a bar?—The headlands at Waterford are very good also; I prefer going into Waterford Harbour myself.

563. Mr. *Reade.*] Were you ever stopped on entering Waterford Harbour by the bar?—I have been stopped.

564. How often has that happened?—I cannot say.

565. In that part of the harbour of Waterford where the bar is, is it rough water or river water?—It is the lowest part of the river.

566. Is there a sea over that bar?—There is.

567. Mr. *Murphy.*] I understand you to say you could not get up to Cork at all times; are you acquainted with Passage, which is the outlet of the estuary?—Yes.

568. Can you not get up to Passage at all times?—Yes.

569. And that is five miles from Cork?—Yes.

570. Is there not a quay there where they could land immediately from a large steamer?—Yes.

571. A totally land-locked place, sheltered from all points of the wind but one?—I think it is; I am not sure; I do not know what wind it is open to.

572. Is there not a shifting bank, which is called the Usk Patch, which lies just in the direction of Portishead, going up the Bristol Channel?—I am not aware of it.

573. Now will you direct your attention then to that chart of the Channel between the Holms and Portishead?—There is a bank there; not a shifting bank.

574. Are you not aware, navigating as you have that Channel, that occasionally a considerable piece of that bank in rough weather comes off and is deposited in another part of the Channel?—I am not aware of that.

575. Look at that chart; do you not perceive that in approaching to Portishead there is a great shallowness of water?—The soundings are very well on both sides; and going up in a fog, as we frequently do, so thick that you cannot see the length of the vessel, we slow the engine and heave the lead each side of the ship, and we go up till we get to Cleaveden, and then we go to Portishead without any difficulty.

576. You have to sound going up?—Yes.

577. Will you tell me how many fathoms of water you require to get your steamer out?—I take care never to get into less than three fathoms, if possible.

578. Did you never touch?—No; and I have frequently come up there with weather so thick I could not see a man standing on the bowsprit end.

579. Are you not obliged, from the difficulty of the navigation, to slow your engines very often in those parts of the Bristol Channel?—If it be foggy.

580. Or at night?—No; we can come up as well by night as by day, if it is not foggy.

581. Would you have any of those difficulties in going from Brean Down?—You would have less of them, decidedly.

582. *Chairman.*] With respect to the approach to the Waterford river, have you any difficulty in getting into the harbour when once you have got sight of the Hook Tower?—No.

583. Sir *Denham Norreys.*] A vessel drawing 12 feet, how many feet of water does she require?—A steam-ship would not strike with a foot of water under her.

584. You would require 13 or 14 feet?—Yes.

585. How would you get up at all times of the tide, there being a place in Waterford

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Waterford Harbour where there are three buoys put where there does not appear to be above two fathoms water?—I stopped my engines several times last season on the sands, and I never found less than 16 feet of water.

586. It appears there are not above three fathoms upon the chart?—Yes.

587. But you think there is more water than is stated upon the chart?—Yes.

588. Mr. *Vivian.*] Have you any difficulty in getting up to Portishead at dead low water?—None.

589. Mr. *Miles.*] What is the depth of the water at dead low water in the Bristol Channel?—From five to six fathoms.

590. Lord *Emlyn.*] Do you consider it is a very intricate navigation?—No.

591. Why have you had the leads going?—Because I like to know where I am.

592. Captain *Berkeley.*] When you get into three fathoms water, you are feeling your way, are you not?—Yes.

593. Then you immediately go off into the Channel into six fathoms?—Yes.

594. And you can always get into six fathoms immediately?—Yes; when I do not get more than five fathoms, I move off.

595. Mr. *Miles.*] Do you know anything about the Newport or Cardiff boats?—I do.

596. Do they ever fail in making their passage?—I think they have never failed more than twice in 20 years. The present boats have never failed, but the old boats failed twice.

597. Mr. *Morgan.*] Did they fail in consequence of the weather?—Yes; I think the old boats that were worn out failed twice to make their passage.

598. Mr. *Reade.*] Then you think a well-appointed boat would never fail?—Never.

599. Mr. *Vivian.*] Is not Bristol a tide harbour?—Yes.

600. And Newport and Cardiff?—Yes.

601. And, therefore, it will be necessary to construct new harbours on each side of the Channel, before steam-boats could start at all times of the tide?—It would be necessary to have a landing-place.

602. Sir *Denham Norreys.*] Does the tide flow very rapidly either way?—Not very; it is influenced by the wind a good deal.

Mr. *W. D. Price*, called in; and Examined.

Mr. *W. D. Price.*

603. *Chairman.*] ARE you the Harbour-master of Waterford?—Yes.

604. Will you state to the Committee your opinion of the navigability of the river Suir, and the capability of the harbour generally?—I think it is navigable, and equal to all kinds of ships, except, perhaps, heavy men-of-war.

605. Are you acquainted with steamers?—Yes; I have commanded a large one.

606. In your opinion, could a steamer of 600 tons and of 250 horses' power get over the bar at all times of the tide?—I cannot recollect waiting for the tide more than once; I do not know that I should have done it then, but for particular caution; that was a 680 tons steamer, the Zenobia, now in India.

607. How many feet of water did she draw?—We were never under 12 or 13, most generally 14 feet of water; sometimes 16 ½ feet.

608. Do you consider that a boat drawing, say 12 feet of water, could at the lowest time of the tide get over the bar?—Always.

609. Is there any difficulty in her approaching the entrance of the river up to the quay?—None whatever.

610. Can she approach the quay in all weathers?—Always.

611. Is the approach to Waterford Harbour sufficiently lighted, and the harbour sufficiently buoyed off?—There is no deficiency whatever.

612. In your opinion, it would not be necessary to incur any further expense to make it accessible to vessels such as have been described getting in at all times?—Not the least.

613. Captain *Berkeley.*] What water is there at dead low water upon the bar at Waterford?—I believe there is very seldom less than 14 feet.

614. Do you know, from your knowledge, that there has been less than 14 feet?—I have heard that, in a very strong northerly gale, or something of that kind, there has been a little less; a gale that would blow the water out of the

river,

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river, but that is a very unusual thing; I do not recollect anything of the kind.

615. Mr. *Corry.*] Is there much sea over the bar in a northerly gale?—No; it is as smooth as the Thames at Gravesend.

616. It is an off-shore wind?—Yes.

617. *Chairman.*] Can you give us any information on the subject of the Milford boats?—I only know they are very small boats, and are considered very inefficient.

618. Do you happen to know whether they make their passages with any regularity?—No, they do not.

619. How long have you known them behind their time?—I have known them in at the dead of night, and sometimes not till the next morning, when they should have been in at 10 o'clock the morning before.

620. Lord *Emlyn.*] Does that arise from their deficiency or the difficulty of the navigation?—I should say from the deficiency of the boats.

621. Mr. *Vivian.*] Are you acquainted with Hobb's Point?—No, I am not.

622. *Chairman.*] Do they carry many passengers?—No, not many; I do not see many in them.

623. Mr. *Vivian.*] May not that arise from the inefficiency of the boats?—It may, in some measure.

624. Have they good accommodation for passengers?—They have good accommodation; they are small boats.

625. Mr. *Reade.*] You have commanded steamers out of Waterford?—I have commanded one large one.

626. Did you ever experience any difficulty in making the harbour?—No; I once took my steamer back after having lost my rudder. I was five days out in the Channel, and got back to Waterford without a rudder. There is a ship lying there now, which came in without a rudder; she is bound to New York, with passengers.

627. Is the passage across the Channel well lighted by the Wexford shore and the Milford shore?—Yes.

628. There is a light at the Saltees?—Yes, I think that might be improved; there might be a tower built instead of a floating ship.

629. *Chairman.*] From your knowledge of Waterford and the number of persons passing in the trading vessels, should you imagine there would be any increased communication if daily packets were established between Bristol and Waterford?—I think there would; the people of Waterford say, if there were a good packet to Bristol they would prefer going that way to going by Dublin.

630. Do you think there would be a great public accommodation if there were such a line of packets?—I do.

631. Sir *Denham Norreys.*] From your knowledge of the harbour of Waterford, can you state whether that chart is correct?—(*A chart is shown to the Witness.*)—There appears by that to be from 12 to 13 feet water upon the bar at dead low water?—Yes.

632. What is the width of the passage through which a vessel drawing 14 feet could pass?—I should say nearly a quarter of a mile.

633. Is there not a bank between the two channels?—No, it is a little patch near the middle; it is raised a little from what it is in the other parts of the channel.

634. Then what space would a vessel drawing 14 feet have to pass that bar? There appears to be a south buoy, an east buoy, and a west buoy, and on both sides, east and west of the south buoy, there appears to be a channel of two fathoms, or two-and-a-half fathoms of water; then either to the east or the west of the south buoy, what water would there be for a vessel drawing 14 feet of water?—I should say about an eighth of a mile; but there is more on the eastern side than there is upon the western.

635. Would it be safe in foggy weather to try to pass this bar?—Yes, it is of no consequence, a fog; if you make the Hook Tower it is quite straight.

635*. *Chairman.*] In point of fact, does the bar present any practical difficulty to a vessel drawing 11 or 12 feet of water?—None whatever.

636. Mr. *Grogan.*] Upon the supposition of a superior class of boats being put upon the station for the carriage of mails between any Port and Waterford, should you say the town of Waterford or the present harbour of Dunmore should be the place?—Waterford, certainly.

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637. Is the upper part of the harbour of Waterford from Dunmore lighted at night?—There is no occasion for it further than Duncannon; the land is high each side.

638. Mr. *Murphy.*] What would he the depth of water one of these large vessels of 600 tons and 250 horses' power would draw?—I think the Liverpool boats are 12 feet, or under 12 feet.

639. With stowage for coals?—Yes; I should say about 12 feet.

640. Now you have spoken of what the communication between Waterford and Bristol would he, provided a hetter class of steamers were put on; give me leave to ask you, is there not a larger communication of passengers between Cork and Bristol, than between Waterford and Bristol?—I am not aware; I do not know anything of the Cork line.

641. Captain *Berkeley.*] You say there is 14 feet on this bar; do you not consider, if a vessel draws 12 feet, that is going too close in a heavy sea?—A steam-boat going so fast over a bar so narrow, I scarcely think there would be any danger.

642. Do you think there would be any danger at all?—I should not be afraid to attempt it.

643. If a steam-boat were huilt of iron, would not she draw much less water?—Yes.

644. How much less would she draw?—I think you might reduce a vessel of that size to 10 feet or under.

645. *Chairman.*] Are you acquainted with Cork?—Not much; I have been there.

646. Are you acquainted with steam navigation generally?—Yes; I have made many passages.

647. How much louger should you consider a steam-boat would be in making the passage from Bristol to Waterford, than from Bristol to Cork, upon an average?—Five hours.

648. Mr. *Murphy.*] What is the distance from Cork to Waterford hy land?—I think they call it 60 miles.

649. Mr. *Morgan.*] I wish to know whether it is your opinion that there would be more communication between Milford and Waterford, if there were a better class of steam-boats established there?—I have frequently heard people say, who travelled that road, that they disliked travelling through Wales; it is such a long coach road; they would rather go direct on to Bristol.

650. Mr. *Vivian.*] Have you ever heard them complain of the Old Passage?—Yes.

651. Mr. *Morgan.*] What do you conceive would be the average passage, with good and proper hoats, from Milford to Waterford?—I should say about 10 hours; but I have not navigated that line.

652. Mr. *Reade.*] Is there much communication from Waterford into the interior; are there considerable towns and a populous country inland from Waterford?—There are very large towns.

653. Is there any river steamer coming into Waterford from any other town?—There is one from Rosse.

654. Is that a daily steamer?—Yes; there is one from Duncannon as well.

655. That is up the same river?—Yes.

656. Do those boats bring many passengers into the town?—They do.

657. There is no steamer up the Suir from Waterford?—No; one is talked of.

658. Is there much communication from Clonmel, Carrick, and that line, into Waterford?—There is, immense.

659. Mr. *Vivian.*] Are you well acquainted with Milford-haven?—I am not; I have been frequently in it, but it is many years ago.

660. *Chairman.*] Are you acquainted with the trade generally out of Waterford?—The sea-faring part of it.

661. Are you of opinion it would be of advantage to that trade to have a daily intercourse with that side?—Decidedly.

662. Both as to correspondence and the convenience of passengers?—Yes; I have a memorandum showing the state of the exports and imports.

663. Is that a memorial of the citizens of Waterford?—It is.

664. Do very large vessels sail from the quay of Waterford?—Yes; we had a vessel of 941 tons last month, and she embarked her passengers from the quay without their having to go into a boat.

665. She

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665. She sailed from Waterford quay?—Yes.

666. Mr. *Vivian.*] Is there not a considerable trade from South Wales to Waterford?—There is.

667. Considerable quantities of coal are shipped from the ports in South Wales to Waterford?—Yes.

668. And corn and flour, and other articles of produce, are shipped from Waterford to Wales?—Yes.

Lunæ, 25° *die Aprilis*, 1842.

MEMBERS PRESENT.

Mr. Corry.
Lord Emlyn.
Mr. Grogan.
Mr. W. Johnson.
Mr. Miles.

Mr. Murphy.
Sir Denham Norreys.
Mr. Reade.
Mr. J. H. Vivian.

LORD INGESTRE, IN THE CHAIR.

Christopher Claxton, Lieut. R.N. called in; and further Examined.

Lieut. *C. Claxton*, R.N.

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669. *Chairman.*] DO you produce two charts?—Yes, a chart of the Bristol Channel from the Holms to Portishead, showing the Channel at dead low-water and spring-tides, which chart was prepared for the commissioners who were appointed to inquire into the port of Bristol, as a mail-packet station. Also, a plan of the road from Portishead to Bristol, and the pier, for which an Act of Parliament has been obtained.

670. Have you anything to correct in your previous evidence?—Yes; in answer to Q. 131, I am made to say, the tide rises 4½ feet, the ordinary rise; whereas it is about 5 feet the first hour, 8 feet the second, 9 feet the third, 9 feet the fourth, 8 feet the fifth, and about 5 or 6 feet the last, on the springs.

671. I omitted to ask you your opinion, whether it would be possible for a steamer leaving Portishead or Brean Down for Waterford, to communicate daily with any part of Milford Haven, so as to take letters and passengers aboard?—Decidedly possible; it would not always be agreeable to do so, but it would be possible to call either at Milford or in Dale Roads, and they do anchor now occasionally in Dale Roads, on their way from Bristol to Waterford, in very bad weather from the south westward.

672. What allowance would you make on an average for detention, on going into Dale Bay, and shipping or landing the mails on the passage to or from Waterford?—They go at present so near to Milford in the direct line, that I should apprehend an hour would be enough; but I am not acquainted with the facilities or otherwise on shore.

673. Mr. *Vivian.*] Is there any protection at Dale Bay at present?—No; there is a good anchorage; it is only exposed to the Haven. I do not know enough of it to say whether it wants protection, but I should think it must be pretty smooth generally.

674. *Chairman.*] Would it be equally easy for a steamer bound to Cork as for a steamer bound to Waterford to stop at Dale Bay?—It would be more out of the fair way for a Cork steamer than a Waterford steamer; the course of a Cork steamer would be farther to the south than that of a Waterford one.

675. I think you said in your previous evidence, a vessel from Waterford would make the Smalls?—It is in the line; it depends upon the wind a good deal.

676. Having made the Smalls on the return voyage, would it be easy to pick up letters at Milford?—Very easy, as well as when passing within the Islands.

677. Am I to understand you that upon the outward voyage from Bristol, and upon the return voyage, it would not occupy more than an hour upon an average to pick up letters at Dale Bay or at Milford?—I think not; I think about an hour. The furthest course is only 7½ miles, passing outside of the Smalls; and in passing inside the islands, you come within a mile, or less than a mile of Milford Haven.

678. Is that inside passage safe in blowing weather?—It can never be otherwise

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than safe, because they would hardly take it unless they made St. Gowan's Head, and then they would keep in shore, and would know exactly where they were.

679. Mr. *Vivian*.] Supposing the packets were to call there for letters, is there any landing-place that would be accessible at all states of the tide?—I think Milford Haven is accessible at all states of the tide for boats; I do not know whether steamers could go alongside, but I think they could get letters off at all states of the tide, and in all weathers.

680. Could they embark passengers?—I do not know enough of the locality to state that.

681. What would be the delay to the steamer in calling at Milford?—The delay, I should think, would not exceed an hour.

682. Under favourable circumstances?—I should think under all circumstances the calling there would not exceed an hour.

683. Sir *D. Norreys*.] You have handed in a plan of the proposed pier at Portishead; is that the plan to which your previous evidence refers?—Yes.

684. Have you considered that plan?—Yes.

685. And you consider it feasible?—Yes.

686. How far does the pier project into the Channel?—I should think, at a guess, about 800 yards; I am not certain; I should say about 800 yards from high-water mark.

687. This plan supposes the water to be at high water, I presume?—Yes.

688. The water at this point rises 45 feet?—Rises and falls 45 feet on the equinoctial spring-tides.

689. How would this plan of pier suit a fall of 45 feet?—It is an inclined plane with a rise of, I think, only one foot in 30; that is, by guess, I have never surveyed it to know exactly what it is.

690. The plan appears to be a causeway on pontoons?—Yes.

691. One foot in 30 is the average fall between the fixed point and the extreme pontoon?—No, I should say something less than half way; half way the pontoons will not be upon the ground, they will begin to be in water.

692. Then taking 800 yards as the entire distance, the fall of 45 feet must be divided into 400 yards?—Yes, which would give about one in 27. I prefer saying one in 30.

693. By the distances you have given, the fall would appear to be one in 27?—If my distances are correct; but I do not profess to give the length of the inclined plane, the distance the pier will be from high-water mark, or the rise, accurately.

694. How many feet of water will vessels have at the extreme point inside the harbour at the lowest tides?—Eighteen feet at the lowest tides of the year; that, perhaps, would not happen four times a year, only on the equinoctial tides of March and September.

695. How many years is it since it has been proposed by the corporation of Bristol to erect a pier at Portishead?—My impression is, it must be 15 years since they proposed to erect a stone pier.

696. How many years is it since they gave up the idea of a stone pier, and proposed to erect an open pier of pontoons or piles?—The corporation never proposed it; it is a private individual who has undertaken this. The corporation of Bristol talked of making a pier to the point, the rock, and Mr. Mylne, the engineer, gave them a plan; but nautical men were afraid that anything solid projecting to the northward would cause all the harbour to fill up. I do not know that the corporation ever projected a pier of piles; they never did to my knowledge.

697. Do you recollect a plan made by Mr. Brunel for a pier?—This is it.

698. How many years ago is it since this plan was designed by Mr. Brunel?—About a year, I think.

699. How many years is it since Mr. Brunel was employed to give plans for the formation of a harbour there?—From a year to a year and a half, I think.

700. Are you not aware of his having given in plans by the direction of the corporation of Bristol, as far back as the year 1832?—Not of my own knowledge.

701. Did you not, in 1832, give evidence of the intention of forming a pier at this point?—I gave evidence about the Bristol Channel, and the tides of the Bristol Channel, and the facilities of a pier, but I do not know whether I alluded to this particular plan or not.

702. The

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702. The completion of the Suspension Bridge at Clifton would be an essential part of the plan you propose now?—Not an essential part; it would be an agreeable addition to it, and would shorten the road to the railway.

703. Mr. *Vivian*.] Have they taken power by the Act to make a branch railway from Portishead to the Great Western Railway?—No; they have a Bill for a branch to Nailsea.

704. Sir *D. Norreys*.] In answer to Q. 132, you stated that at Brean Down the tide ran six knots an hour; between what points of the Bristol Channel should you say the tide runs at that rate?—At Portishead Point and St. Thomas's Head, and Brean Point, and between the Holms.

705. How many miles is that?—I should suppose the whole would be about 600 yards at each point.

706. What should you state was the greatest run of the tide between the Holms and Portishead?—On the height of springs, the greatest run is six knots.

707. That is to say, a vessel would have to encounter from the Holms to Portishead a tide running six knots an hour?—The greatest run she would have to encounter would be six knots, in places, and only in places, and for short and different periods, depending upon the time of tide.

708. Between the Holms and Portishead, what would be the greatest run a vessel would have to encounter all the way?—Upon the average, about 4½ miles an hour to 5 miles upon the springs, and about 2½ miles on the neaps.

709. If the tide for that distance run upon an average from four miles to five miles an hour, that strength of current must extend a considerable distance beyond the point which you have placed as the limit, the Holms; how far should you say it would extend?—I should say, after passing the Holms, it would be for the next four miles half an hour slacker, and so slacker as you get down Channel, till you brought it to three miles at about 50 miles from Kingroad.

710. Mr. *Miles*.] Was there ever any serious intention of applying to Parliament for making a pier at Portishead in 1832?—No; it belongs to the corporation, and they could have made it without an Act of Parliament.

711. Did you ever think there were serious intentions of making a pier at that time?—It is so long ago, I do not know enough of the circumstances to state.

712. Have you any hesitation in saying, that if a line of steam-packets could be got to start from this place, the parties would make the pier?—I have not the slightest doubt of it; on the contrary, I am quite sure there are parties who, if the Government adopt the place, will make the pier.

713. You think there would be no difficulty whatever in getting the money?—I think none whatever in getting the money to make an efficient landing-place, at all times. I think at the commencement it would be made as cheaply as it could, and it would be increased according to the trade which was brought to it, and the circumstances which called it forth.

714. You think that pier would answer all the purposes necessary, as far as you can judge from the survey of Mr. Brunel?—I think it would answer all the purposes of landing and embarking carriages, horses, passengers, parcels, and letters; but I do not think the cheap pier I speak of would make a comfortable harbour for any number of vessels; it would not give space enough; but I am quite certain, from having carefully watched the ripple, for it does not deserve the name of a sea round about Portishead, one vessel of from 250 to 300 feet long, well moored, with a chain of communication to the shore, would be quite enough for all the purposes I have named, but not to make a comfortable harbour, such an one as vessels might make fast alongside the pier, or one another.

715. Then you think that would be sufficient for the class of steamers required for the Irish trade, but not for the large Atlantic steamers?—Yes, I think it would take our ship which we are now building of 330 feet long.

716. Sir *D. Norreys*.] Does the formation of this pier depend upon the establishment of a line of packets from Portishead?—I think so.

717. Do you understand it is not likely to be formed unless a line of packets is established?—I think it is not likely to be formed unless Portishead is likely to be made a mail station.

718. It is not for the general trade of Bristol that it is projected, but for the

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purpose of a packet-station?—It would greatly benefit the public and the steam trade of the port, but it is for the packet-station it is positively necessary; they feel very strongly about it. The last Government gave contracts to almost all other ports, but would give none to Bristol; and unless there is a chance of getting a contract in Bristol, or a station made there, I do not think the Bristol people will move a finger towards it.

719. Mr. *Vivian.*] What would be the area of the basin upon the plan proposed of the three tanks?—I suppose it would be 900 feet one way, and 1,200 feet the other, in deep water, or more, if more room were required.

720. What number of vessels would it afford accommodation to?—Twenty, I should think, and to all the coasters which are blown up the Channel; it would make a place of safety in the most exposed winds for all those vessels which are in the habit of taking that bank of mud which I have just described. I have counted 61 vessels lying within the area of the pier, upon the mud, which had run in for shelter, at one time.

721. Would that basin be protected from all winds?—Upon that plan it would be protected from all winds.

722. That is, the plan of the three tanks?—Yes, because it is locked all round, or nearly so.

723. And the vessels within it would be well protected?—Yes.

724. You have stated that a steamer starting from Portishead might call at Milford; is it usual for Post-office packets to call at other points on their passage to take in bags?—Yes.

725. Can you state any instance in the kingdom?—Yes; all the West India mails which start from Southampton call at Falmouth; all the Peninsula mails which start from Southampton also call at Falmouth; and the Oriental and the Great Liverpool, which carry the Indian mail, call at Falmouth.

726. Do they take bags with them from Southampton, or do they not call at Falmouth for the bags?—I think it is likely enough they would take the Southampton bags; I do not know what others come there; they would not take the London bags from Southampton.

727. Are there not mails now overdue from the West Indies, in consequence of the packets having to call at different stations for the bags?—I am not aware that that is the reason. After leaving Falmouth the Peninsula packets call at Corunna, and then they go on to the Havannah.

728. Mr. *Reade.*] Have you heard any estimate of what time it would take to complete a pier upon this plan?—I should think 12 months, or a year and a half. Mr. Brunel stated about that time.

729. Then if it were recommended that a line of packets should be established from Portishead to Waterford, in 12 months or 18 months, you think a pier might be completed in the meantime?—Yes; I should say in 18 months.

730. In other words, if there were a prospect of establishing a line of packets there, the pier would be completed in that time?—Yes; if I were a party concerned in the contract, I would undertake it should be so; and I think others would do what I would do, if I were in a position and at liberty.

731. You think it would take 18 months?—Yes; but in the meantime I would form a landing-place.

732. Sir *D. Norreys.*] Are you acquainted with Barnstable Harbour?—Yes.

733. What are the facilities it affords?—I am not sufficiently acquainted with it to state; it is a bar harbour.

734. Mr. *Miles.*] What do you think the average would be from Portishead to Hobb's Point with a first-class steamer?—I think the average would be under 12 hours.

735. Mr. *Vivian.*] What would be the minimum?—Ten hours.

736. And the maximum?—Fifteen hours. I came from a mile this side of Hobb's Point to Kingroad in the Great Western in eight hours, and in six hours from Tenby.

737. That was with the tide?—Yes.

Mr. *W. D. Price*, called in; and further Examined.

Mr. W. D. Price.

738. *Chairman.*] YOU have heard the questions put to Captain Claxton with reference to the possibility of a steamer calling on her passage to and from

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Bristol and Ireland at Milford; what is your opinion on that subject?—I think she could very easily call in Dale Roads.

739. What should you say would be a fair average detention to allow for; how much longer should you think it would make the passage?—If they went to Milford, I should say an hour would not be sufficient; probably an hour and a half; if they went to Dale Road, an hour.

740. Mr. *Vivian.*] Is there sufficient protection in Dale Road?—It is nearly land-locked; there are not more than two or three points in which it is not land-locked; I have frequently seen sailing packets in harbour there in westerly winds.

741. What would be the length of the passage from Portishead to Milford?—I can hardly tell you that; I have not navigated the Bristol Channel much; I never commanded a steam-boat on that line.

742. Do you not think, in the practical working of the arrangement you propose, the calling at Milford, there would be considerable inconvenience?—I think not a great deal, with such steam-packets as those proposed, because they go very near the land all the way down, and in returning, they make the Smalls; they either go to the westward of it, or through the Islands.

743. When you speak of a delay of an hour and a half, that is the average?—Yes.

744. What do you think would be the maximum?—In a heavy gale of wind and a heavy sea, as there is at Milford in southerly gales, it might extend to two hours, or two hours and a half; I should say it would not be more than that.

745. Mr. *Reade.*] Do you know enough of Milford, to know whether packets could approach there in all seasons?—Yes, in all seasons.

746. It is very safe?—Yes, none more so.

747. Mr. *Vivian.*] And, of course, up the Haven to Hobb's Point?—Yes.

748. What is the rise of the tide in Dale Road?—I do not exactly know; it is considerable.

749. In the Haven opposite to Milford the packets would have to remain in the roadstead?—Yes.

750. They could not embark carriages?—No; except by lighters, as they have been in the habit of doing; by a large boat.

751. That would occasion a considerable delay?—Of course.

752. *Chairman.*] Do you often see carriages come by the present packets?—Not often.

753. How many do you think in a year?—I cannot say; very few.

754. One in a week?—I should say, not so often.

755. Mr. *Vivian.*] Are not the present packets very inefficient?—Yes.

756. And that may deter persons from taking the Milford line?—It may.

757. Do you know what the passage-money is to Waterford?—I do not; I have heard it is very extravagant.

758. Sir *D. Norreys.*] What course would a vessel take from Portishead to Waterford?—She would come down west and by south-west.

759. Down the English coast?—Yes.

760. To what point; as far as Lundy?—No, not so far as Lundy, a powerful steam-boat.

761. Would it not be a considerable detention of a vessel to be obliged to go into Dale Bay to receive bags, and so on?—I think not more than an hour or an hour and a half.

762. Mr. *Vivian.*] Is there any road from Milford to Dale Point?—I do not know; I am not acquainted with the inland part of the country.

763. Sir *D. Norreys.*] Your answers have reference to the passage from Waterford to Posset Point?—Yes, or Brean Down.

764. Supposing the port in Ireland were Cork, with a south-west gale, it would be difficult, or at any rate it would greatly increase the length of the voyage to be obliged to go to Milford?—You would have further to go out of your course.

765. Would not a vessel even going to Waterford in a heavy south-west gale, keep the English land to the west of Ilfracombe?—No, not one of those large boats.

766. Would not vessels such as now run?—No, even they would not keep the land so far as Ilfracombe.

767. From the point at which they would start for Waterford after leaving

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the English coast, would not their being obliged to put into Dale Bay, considering the direction of the wind which they would have to encounter coming out, add considerably to the length of the voyage ?—I think in going to Waterford, they would be delayed about an hour, or an hour and a half, if they went into Dale Bay; if they went into Milford, it would be more.

768. Mr. *Vivian.*] Have you ever landed at the Mumbles ?—Frequently.

769. What would be the detention to a steamer in calling at the Mumbels, to land or take in bags ?—I cannot say, as ships are obliged to lay out, the water shoaling there very much.

770. But if there was protection, they could call there ?—Yes.

771. And that would be less out of the course than Milford ?—Yes.

772. Mr. *Murphy.*] Is there not great irregularity in the soundings in entering Waterford Harbour, so that sometimes the lead indicates a great depth of water, and the next minute there is a shoal ?—No, not that I am aware of; up the river there is that sort of thing, but that is far up, where you have no occasion to heave the lead.

773. Do you know where the Inch is ?—I cannot say I know it by that name.

774. Do you know there is a place called the Inch, in the way to Waterford Harbour ?—I do not know it by that name.

775. Do you know any place approaching the navigation of Waterford Harbour where there is that uncertainty in sounding ?—No, I do not know of any such place; but on all bold coasts you may get soundings in one minute, and before you can heave the lead again you may be on shore. That is the case with all bold coasts.

776. Do you know whether that is the case on the Waterford coast ?—No.

777. Do you know it by your experience ?—No.

778. Did you ever hear of it from nautical men ?—Never; I have gone in and out for 20 years.

Capt. *George Evans.*

Captain *George Evans*, called in; and further Examined.

779. *Chairman.*] DID you hear the questions that were put to Captain Claxton and Mr. Price as to the possibility of steamers calling off Milford ?—Yes.

780. Will you state your opinion to the Committee as to the desirableness of that, and the probable time it would occupy ?—The time would depend greatly upon the arrangements that were made at Milford for facilitating their departure.

781. Presuming there would be a boat to go off with the mail, which would come on board the steamer when she came into the harbour ?—I do not think you could well calculate upon a boat always getting on board a steamer off Milford with passengers and the mail.

782. Could you in Dale Bay ?—Yes.

783. Are you aware whether there is a road from Milford to Dale Bay ?—There is not one laid down in the plan I have; I cannot speak to that from my own knowledge.

784. Putting aside the question of communication with the shore, what, in your opinion, would be the average time of detention of a steamer calling in Dale Bay, either in the passage from Portisbead or Brean Down to Waterford, or back again ?—The detention would depend entirely upon the weather and the wind; she might be detained a couple of hours, and she might not be detained more than one hour.

785. It would be more out of the way for a vessel bound from Cork than to one bound from Waterford ?—Yes; coming down the Bristol Channel, the course of a vessel bound to Cork would be more to the southward, and consequently further off from Milford.

786. Mr. *Reade.*] Milford is more out of the course to Cork ?—Yes; it is in the direct line to Waterford.

787. If there were any plan for embarking the Welsh mails at Dale Bay, do you think the steamers to and from Waterford would not be detained more than an hour ?—An hour or two.

788. What course would the road from Carmarthen to Dale Bay take ?—I should say, it would go through Haverfordwest.

789. Do you know of any natural difficulties or impediments to the running

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of a road to that point?—I have never examined the place, and I cannot speak as to that.

790. Mr. *Vivian.*] Do you know the road from Carmarthen to Hobb's Point?—I have been over part of the road to Hobb's Point.

791. A new road has been made, I believe, with the assistance of Government?—At the time I was there, I understood Government was to assist them a little; whether they have done so or not I do not know.

792. It is understood that a good line of road has been constructed to Hobb's Point?—I considered it a very good road at that time, and reported upon it.

793. Is there any landing-place at Dale Bay?—I believe not, at present.

794. Is there any accommodation for vessels, besides the roadstead?—There is no pier; the roadstead is good and secure, but for packet purposes it would require a pier for the convenience of embarking and disembarking passengers.

795. Can you form any idea what would be the expense of such a pier?—No, I never entered into that; I was not ordered to examine it at the time I was there.

796. No coasting vessels would call there; it is an outlay that would require to be made by the Government?—I should think so; I should think anything there must be done by the Government.

797. Mr. *Reade.*] There is no town connected with that roadstead?—No.

798. Mr. *Morgan.*] Was there not a large outlay made at Hobb's Point?—Yes.

799. Was that made by the Government?—I fancy so; the pier was built by a Government officer.

800. Mr. *Vivian.*] How many miles an hour do you think a packet could steam down the Channel between Bristol and Waterford?—I stated in my last examination that I should consider eight miles an hour a fair average all the year round for that part where you are exposed to the swell of the Atlantic. In the river, between Nash Point and any part to the eastward, I consider the average would be 10 miles, and when exposed to the sea, eight miles all the year round.

801. At what rate does the mail-coach to Milford usually travel?—Mail-coaches usually travel 10 miles an hour.

802. Is not the line of mail-road through South Wales parallel with the coast?—It appears to be so from Carmarthen as far as Hobb's Point.

803. *Chairman.*] What detention, in your opinion, would it be for a vessel bound from Bristol to Waterford calling at Dale Bay?—I think an hour or two; it depends upon the weather.

804. Now to a vessel bound to Cork?—Looking at it in precisely the same light, the course being so much further to the southward in going to Cork, I should say it would make an additional hour or two.

805. Mr. *Miles.*] How long will it take to go from Portishead to Milford in a steamer of from 500 to 600 tons, and from 250 to 300 horses' power?—The average would be 11 hours; then you must allow for going to Hobb's Point. I should say the average would be 12 hours including going to Hobb's Point.

806. We understand by the evidence that has been given, that it will take an hour to go from Bristol to Portishead?—Yes.

807. That is 13 hours from Bristol to Hobb's Point?—Yes. The whole time occupied by steam from Portishead to Hobb's Point by the class of steamers contemplated, including the transmission of the mail from Bristol to Portishead by land, would be 13 hours.

807*. Mr. *Vivian.*] You are speaking of the average passage?—Yes.

808. What would be the minimum passage under the most favourable circumstances?—The minimum passage, under the most favourable circumstances of wind and tide, would be nine hours and a half.

809. From Portishead to Hobb's Point?—From Bristol to Hobb's Point; including an hour of land transit from the Bristol Post-office to Portishead, you might get from Bristol to Hobb's Point in nine hours and a half under the most favourable circumstances; that is, supposing the packet to take a strong ebb the whole way down the Bristol Channel, and a fair wind.

810. What would it be under the most unfavourable circumstances?—Under the most unfavourable circumstances, it might be from 15 to 16 hours.

811. Then the range would be from 9 ½ hours to 15 or 16 hours?—Yes.

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812. Mr. *Reade.*] Leaving a mean of 13 hours?—Yes.

813. *Chairman.*] Do you mean to say, a large powerful steamer, with a favourable wind and tide, would not go more than 10 miles an hour?—I assume a speed of 12 miles an hour in the calculation of nine hours and a half.

814. Mr. *Vivian.*] Of course it is very desirable to preserve regularity in Post-office communication?—Most decidedly.

815. Do you think it would be desirable that there should be a variation in the arrival of the packets at Waterford of seven hours, with a view to a communication with the interior?—Certainly not; it is not desirable to have any variation in the arrival of the mails; the more regular you can get them the better.

816. Do you not calculate on a difference of seven hours in the time of the arrival of the packet at Hobb's Point, under favourable and unfavourable circumstances?—Yes; taking the two extreme cases, as I have done.

817. What class of steamers do you calculate on?—From 500 to 600 tons, with from 250 to 300 horses' power.

818. How many of those would be required?—That would depend upon the number of communications you would have.

819. Mr. *Miles.*] Do you know how long it takes the mail to go from Bristol to Milford?—When I was there in October 1835, it took 18 hours in transit between Bristol and Hobb's Point.

820. Do you know how long it takes at the present time?—No, I do not.

821. Mr. *Vivian.*] It appears, by reference to a return that has been furnished by the Post-office, that the mail which leaves Bristol at six o'clock in the morning, arrives at Hobb's Point in 16 hours 44 minutes; have you any reason to think that statement is not correct?—I have not.

822. Mr. *Miles.*] Then, under the most unfavourable circumstances of wind and tide, a letter could be conveyed quicker by steam from Posset Point to Milford than by mail-coach?—Yes; than by Bristol round by road and ferry.

823. Mr. *Vivian.*] It appears by the Post-office return that the distance from Bristol to Hobb's Point is 149 miles six furlongs; is that correct?—I have no reason to doubt the correctness of that; the new road from Milford to Hobb's Point was not opened when I was there.

824. Mr. *Miles.*] Then it is your opinion that a letter could be sent to Waterford from Posset Point, the packet touching at Milford, under the most unfavourable circumstances, than by the present route?—I think it might, but this observation must be made. I have given you the extreme time by the water conveyance, and were railroads established down to Hobb's Point, then letters would be very much accelerated by that mode, and the great uncertainty of water conveyance avoided.

825. *Chairman.*] What difference of time would you allow for letters being conveyed from Bristol to Brean Down, and so to Milford?—Two hours and a half less, using the railroad to Brean Down.

826. Sir *Denham Norreys.*] What have you put down as the distance from Portishead to Milford Haven?—Ninety-six and a half miles.

827. In the course of the commission of Post-office inquiry, upon which you were employed, you examined the harbour of Holyhead, I believe?—I did.

828. Have you had your attention called to the report of Sir James Gordon and Captain Beechey as to the relative merits of Holyhead and Portdynllaen as a packet station to Dublin?—Yes, I read their report.

829. Do you agree with that report or not?—Perfectly; it coincides exactly with one I made several years before on the same subject.

830. Is the present harbour of Holyhead, in your opinion, capable of holding a superior class of vessels, sufficient to perform two voyages a day between Holyhead and Dublin?—No; the present harbour is insufficient, and I reported upon it. It ought to be increased.

831. Are there capabilities of increasing the harbour at Holyhead?—Yes; half of the pier may be built upon a bank which is now in existence; and I think the plan of Sir James Gordon and Captain Beechey, as shown in the chart they sent in, is a very good one.

832. Have you yourself examined the Bay of Portdynllaen?—I went to look at the bay in consequence of hearing it was likely to become a packet station, and I wrote a letter to the Admiralty objecting to it; first, from the enormous expense

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expense of building a pier there or a harbour; and next, the great danger in attempting to look for it at night in the bottom of the bay with anything like a northerly wind, inasmuch as if the vessel missed the harbour, it would be certain destruction to her and every soul on board.

833. Can you state anything in favour of making Holyhead in thick weather in preference to the Bay of Port Dynllaen?—Yes; you may run in in any weather close to Holyhead, the shore being steep and bold, and you can always get off on one tack or another; there is likewise a provision there for the safety of the packets, which attracted my attention from never having known anything of the kind in my life. The Stag rock, on which the lighthouse is built, is connected with the main land by a chain-bridge. I was surprised at the number of sea-fowl upon the rock, and asked why they congregated in such numbers, and were regularly fed every day. The harbour-master told me that they were objects of his care and anxiety, for that when the packets in foggy weather could not make out any land, and finding by their lead they were close to the shore, they were in the habit of firing a gun, and at the report, the sea-fowl flew up screaming, and thus indicated the position of the packet instantly. I tried that experiment when I was there, and found it answer inimitably.

834. There is nothing of that description at Port Dynllaen?—No; there is no rock extending from the shore which you could put a lighthouse upon.

835. Then, in addition to the difference of distance between Dublin and Portyllyn, and Dublin and Holyhead, you think, in respect of the harbour, the advantages are in favour of Holyhead?—Decidedly; and at crossing from Holyhead, you always take the tide at right angles, and, consequently, it is upon your beam; it does not accelerate or retard the progress of the vessel. Coming from Port Dynllaen, on the contrary, you would have to make an oblique course, any other than which might endanger you in getting near the Kish Bank.

836. Mr. *Reade.*] You would not have so much of the head-wind from Port Dynllaen as from Holyhead?—You might have a slant from the one which you would not from the other; and the distance would be increased considerably by the precaution you would have to take in rounding the Kish Bank.

837. Mr. *W. Johnson.*] What is the run of the tide off Holyhead?—It runs nearly up and down Channel when you get outside the Race; between that and the Kish-light it runs nearly in the direction of the Channel.

838. *Chairman.*] Do you think there would be any difficulty in having a large powerful class of steamers running between Holyhead and Kingstown similar to those which now go between Kingstown and Liverpool?—The present harbour at Holyhead is not calculated for that class of vessels at all times of the tide; it must be enlarged.

839. In the course of your employment on that commission did you examine the stations at Portpatrick and Donaghadee?—I did; I examined both harbours very minutely.

840. Will you state what was the result of your opinion and report?—I strongly recommended they should be done away with.

841. Did you propose any substitute?—I did; Cairn Ryan in Loch Ryan on the Scotch, and Loch Larne on the Irish shore.

842. In making that report, was your attention confined solely to the maritime view of the question, or in conjunction with the facility of conveying letters?—It was both as to facility of communication and the maritime question; but I look upon the harbour at Portpatrick to be entirely useless except for very small vessels.

843. Would the sea passage between the points you speak of be longer or shorter than the existing one?—The sea passage would be longer; but as a superior class of vessels might be employed, the time occupied would be about the same; the distance would be greater, but the vessels would go quicker, the present harbour not being capable of holding any but the smallest class of steamers.

844. Can Portpatrick be made accessible for a sufficiently large class of steamers?—No, any outlay you would make upon Portpatrick would not make a sufficient harbour of it. It appeared to me, as fast as they built the outer pier, the sea washed it away in the winter, and I therefore considered it was a useless expense, just the same as throwing the money into the sea.

845. Mr. *W. Johnson.*] Did you survey that line at all with reference to running up to Belfast?—I did.

846. What

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846. What is your opinion of going to Belfast in preference to Larne?—My opinion was, that Larne was very much preferable, unless a harbour were at Belfast.

847. Have you been at Belfast since the alteration has been made in the harbour?—No; I strongly recommended to the gentlemen I met at that time from Belfast, the members for the town and others, to form a harbour which would admit steamers at all times of the tide.

848. Are you aware of the alteration which has taken place there?—No, I have never been there since 1835.

849. Then you cannot speak of that harbour in its present state, since the new cut has been opened?—I cannot speak of it at present at all.

850. Then if the harbour of Belfast were in such a state that packets could run up at all times of the tide, should you recommend it, or Larne, as a station?—I should recommend Larne as a packet station for this reason, that all the letters from Larne for Belfast, and for the South of Ireland, would get from Larne as quickly as by water; and all those that went round by the North would be accelerated very considerably by starting from Larne, and going round by the new road.

851. What difference do you think it would make in the length of the passage from Loch Ryan, going to Larne or to Belfast?—I cannot answer that question, not knowing what part of Belfast Loch the packet would go to.

852. *Chairman.*] Have you any additional information to give on this subject to that contained in the Sixth Report of the Commissioners of Post-office Inquiry, in 1835?—No; I think everything relative to the mails is in that Report.

Jovis, 28° *die Aprilis*, 1842.

MEMBERS PRESENT.

Lord Emlyn.	Mr. Morgan.
Sir Robert Ferguson.	Mr. Murphy.
Mr. Grogan.	Sir Denham Norreys.
Mr. W. Johnson.	Mr. Reade.
Mr. Miles.	Mr. Vivian.

LORD INGESTRE, IN THE CHAIR.

Mr. *William Smith*, called in; and Examined.

Mr. *William Smith.*

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853. *Chairman.*] DO you reside in Bristol?—I do.

854. What is your occupation?—I am a merchant and general agent.

855. Is your business connected with the Irish trade generally?—Yes, a good deal.

856. With what ports do you trade?—More with Dublin and Cork.

857. Do you often go to Ireland?—About once a year.

858. Which way do you go?—I generally go by Liverpool.

859. Which way do you send your correspondence to the South of Ireland?—Always by the north mail, unless it is when the packets are sailing from Bristol.

860. You never send by the Milford packets?—Never, if I can avoid it.

861. Do you receive many letters by the Milford line?—Not many now; not one where I used formerly to receive 20 or 30.

862. You write by the Liverpool mail?—Yes, unless I have an opportunity by our own packets.

863. The direct packets from Bristol?—Yes.

864. Do you conceive that letters arrive with greater regularity by the mail through Dublin than by Milford?—I think, in bad or indifferent weather, there is greater certainty. In fine weather, the letters would be somewhat sooner in Waterford by the Milford mail; but in the winter season, when we are most anxious about our correspondence, I always prefer writing by Dublin.

865. Is the advantage greater of writing to Cork by Dublin than to Waterford?—Writing by Dublin, your letters will arrive at Cork at the same time as by Milford, and with more certainty.

866. *Chairman.*]

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866. *Chairman.*] Can you give the Committee any information as to the amount of imports between Cork and Bristol, and Waterford and Bristol?—I have a statement, showing the total amounts of imports to Bristol from Cork, Waterford, and other places, for the 12 months, from April 1839 to April 1840.

867. Where did you get it from?—From the public documents; from what we call our "daily lists."

868. Are you satisfied of its correctness?—Yes.

[*The same was handed in, and read, as follows:*]

IMPORTS to *Bristol* from *Ireland,* from 5 April 1839 to 5 April 1840.

———	TOTAL.	CORK.	WATERFORD.	OTHER PLACES.
Barrels of bacon	7,147	3,087	3,668	602
Tierces of beef	1,887	417	- None -	1,470
Barrels, pork	2,881	1,599	117	1,165
Casks, butter	33,864	22,741	10,600	623
Boxes of eggs	4,891	4,173	690	128
Sacks, flour	10,753	4,053	5,900	800
Ditto, oatmeal	2,981	1,814	670	497
Bolls, wheat	18,703	336	10,806	7,663
Ditto, barley	5,449	323	4,100	1,026
Ditto, oats	96,547	11,561	35,500	49,496
Tons, potatoes	622	247	- None -	375
Pigs	126,128	18,850	54,135	63,143
Casks, lard	81	31	20	30
Cows	2,818	1,552	993	273
Sheep	8,197	2,265	3,626	2,406
Horses	612	70	357	185
Casks, whisky	449	118	14	317
Ditto, porter	7,242	1,313	1,000	4,929
Cases, merchandize	429	250	174	5
Bags, feathers	311	233	26	53
Boxes, salmon	1,700	1,503	90	107
Casks of vells	200	86	38	76
Bales of leather	320	236	9	75
Boxes of soap	300	203	- None -	97
Salted hides	3,500	1,934	130	1,436
Boxes, candles	100	40	- None -	60

869. Can you give the Committee any statements of the exports from Bristol to the same places in Ireland?—I can obtain a statement of the exports, and will hand it in on a future day.

870. Do you know the average number of cabin and deck passengers between Cork and Bristol, and Waterford and Bristol?—I have ascertained, through the steam-packet office, that the average number of cabin passengers from Waterford is about seven per voyage; I cannot tell the number of deck passengers.

871. Is that summer and winter?—It is the average for all parts of the year; it is sometimes more, and sometimes less.

872. How many from Cork?—From Cork the average is about four times that number.

873. Twenty-eight per voyage?—Yes.

874. What is the cabin fare from Cork to Bristol?—Two pounds.

875. And

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875. And from Waterford to Bristol?—Thirty shillings.

876. Can you state the expense by mail from Bristol to Hobb's Point?—The expense by mail from Bristol to Hobb's Point would be about 3 *l.* 10 *s.* or 3 *l.* 12 *s.* inside, including coachmen and guard.

877. And the fare by the packet to Waterford?—I understand it is a guinea. I consider it would cost 5 *l.* to take you to Waterford by Hobb's Point.

878. Then the expense by the mail from Bristol to Hobb's Point, and of the steam-boat from Hobb's Point to Waterford, would be 5 *l.*; and from Bristol to Waterford by the steam-boat direct would be how much?—It is 1 *l.* 10 *s.* the fare, and 2 *s.* 6 *d.* the steward. I know of no other expense. I do not include the expense of living in either.

879. Do you think an increase of passengers and business would take place, if a daily line of packets were established from some point in the Bristol Channel to some point in the South of Ireland?—I think there would be an increase of business and of communication generally.

880. Would there be any saving of time in transmitting the mail by a fast line of packets, say from Brean Down or Portishead?—Yes, there would be a saving of time.

881. To what extent?—There would be a saving of five or six hours.

882. How long do you think a packet would take from Brean Down to Waterford, assuming it to be a large packet of 600 tons, and of 250 horses' power?—A fast vessel ought to go in 15 or 16 hours.

883. Assuming that the packets going from Brean Down make the passage upon an average in 18 hours, that is, allowing two hours for going from Bristol to Brean Down, and embarkation, what saving of time would be effected over the present arrangement of going by Milford?—It takes 17 hours going to Milford, and it is a good passage to go across in 10 hours.

884. Do they do it in 10?—I think not; but I put the most favourable passage in good weather.

885. That is 27 hours from Bristol to Waterford?—Yes.

886. Then there would be a saving of seven hours in going direct from Bristol, over going by Milford, under the most favourable circumstances?—Yes.

887. In your opinion, would there be a greater saving to the public of time and money by that arrangement?—I think there would be a great saving by any good communication from Bristol, or the neighbourhood of Waterford or Cork.

888. From your knowledge of the general communication between Bristol and the South of Ireland, are you of opinion there would be sufficient trade to make that establishment pay?—I think if there were good packets, the trade would increase most materially; I think a much greater number of passengers would go.

889. Do you think it would be a convenience to the southern parts of England as well as Ireland?—I think it would be a great convenience.

890. You said the saving in time and money would be great in going to the South of Ireland from Bristol, over going by Milford; would not the saving be greater still in going to Cork?—I think not much.

891. Would it cost as much to go to the South of Ireland by Milford, as by Liverpool?—I think there would be a saving in going by Milford, but not much; but there is not such a certainty; no one would travel through South Wales except on business.

892. Have you any trade at Limerick or Clonmel?—Yes.

893. Now taking the course of the year, which way do you now go?—Always by Liverpool and Dublin.

894. Why?—For greater certainty, comfort, and conveniences of all kinds.

895. Would you do that if there were a regular fast line of packets established from Bristol or its neighbourhood?—Certainly not; if there were Post-office packets from Bristol to the South of Ireland, I would never go by Dublin.

896. Will you state the expense, as near as you can, to go, say to Clonmel, by Liverpool?—It would be about 5 *l.* 10 *s.*

897. What would it cost going by Bristol to the same point by the proposed line of packets, assuming the fare to remain as it is by the present steamers?—£.2. 10 *s.*

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898. Mr. *Miles.*] When you go to Liverpool, you go on business of your own, I suppose?—Yes.

899. You have business of your own at Liverpool, which takes you that way instead of going direct to Waterford?—I have business at Liverpool.

900. It takes you round that way at present?—It does at present.

901. Mr. *Vivian.*] You stated that you usually send your letters to the South of Ireland by Liverpool and Dublin?—Yes.

902. Does not that depend upon the time of day at which your letters are written?—It does.

903. At what time does the mail leave Bristol for Liverpool?—At six o'clock in the evening.

904. And for Milford?—At seven in the morning.

905. Then if a letter is written in the evening, would you send it by Milford or Liverpool?—If it were going to the South of Ireland it would go by Milford, but a duplicate would go the next day by the north mail, for the purpose of insuring it.

906. You stated it requires 27 hours to go from Bristol to Waterford by Milford?—Yes; I think it is about that time under favourable circumstances.

907. How many hours does it require to go from Bristol to Liverpool by the railway?—Fifteen.

908. And from Liverpool to Dublin by the steam-boat?—Twelve hours.

909. And from Dublin to Waterford?—Ten hours.

910. That is 37 hours from Bristol to Waterford by Liverpool and Dublin?—Yes.

911. That is independent of the time that would be required at the different post-offices to sort the letters?—I think you could make the whole journey in 37 hours from Bristol.

912. Mr. *Miles.*] The passengers would, but not the letters?—I think the letters would.

913. You would allow no time for sorting?—If I write a letter either in Bristol or Liverpool this evening it arrives at Liverpool to-morrow morning, it gets to Dublin to-morrow night, and to Waterford the next morning.

914. You would go by the same conveyance as the mail?—Yes; I consider I am going in the best way.

915. Mr. *Vivian.*] Then the shortest time possible in which you could by railway and steam-boat get from Bristol to Waterford by Liverpool and Dublin is 37 hours, without allowing any time at the post-office for sorting letters?—I consider a letter would go in that time.

916. And by Milford it would go in 27 hours?—Under very favourable circumstances.

917. By the mail from Bristol to Milford Haven, and by steam-boat from Milford to Waterford?—Yes; but there are so many causes of delay. In the first place, in crossing the Aust passage you might meet with an impediment; then I have known the mail detained a whole day at Milford, it could not cross. I have also known that the packets at Milford could not cross for two days; now I have never known anything of that kind at Liverpool.

918. If proper landing-places were made at the Aust passage, do you think any delay there might be avoided?—I cannot say anything on that head.

919. What is the cause of the delay at Milford; is it the inefficiency of the boats?—I have heard so.

920. But still the present packets usually perform the voyage in the time you have mentioned, 10 hours?—From 10 to 12 hours in fair weather, but in rough weather there is no certainty in the packets; at least as far as our letters show to us.

921. Supposing the packets were to go from Kingroad, you would double the extent of sea-voyage that they have from Milford to Waterford?—Yes; but I assume the packets would be superior altogether. Even the packets they have now (though I must say they are not very efficient) will make their voyage, when the Milford packets will not make theirs.

922. Then you assume a more efficient packet than they have at present at Milford?—Yes.

923. And in making the comparison you argue on more powerful packets from Bristol, and on the present inefficient packets from Milford?—No; I am making

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making a comparison between the present very inefficient packets they have at Bristol, and the present packets at Milford.

924. Supposing the packets were to start from Kingroad, would they not have to start immediately upon the arrival of the mail from London, at all times of the tide?—Yes, I suppose they would have to wait for the arrival of the mail from London.

925. At what hour does the mail arrive at Bristol?—At present the London mail arrives at one in the morning.

926. And consequently the packets would have to go down the Channel in the dead of the night?—Under the present arrangements, if they put the mail on board immediately, they would.

927. Mr. *Miles.*] There is a day mail to Bristol?—Yes.

928. Is there any objection to putting the letters on board immediately after the day mail arrives?—No.

929. Mr. *Vivian.*] At what time does the night mail for London leave Bristol?—At one in the morning.

930. Then the packets from Waterford would have to work their way up the Channel in the dead of the night also?—Yes; but there is a day mail in the morning, at 48 minutes after eight.

931. But the principal mail, which arrives in London in the morning, leaves at one o'clock?—Yes. It can be of very little consequence to merchants whether they receive their letters by the day or night mail now; there is only a difference of four hours.

932. Is it not more convenient to a merchant to receive his letters in the morning than in the afternoon?—Yes; but if he receives them twice a day, it would be better than once.

933. Mr. *Miles.*] By which is there greatest regularity, the Dublin or Milford route, in the delivery of letters?—By the Dublin route.

934. Mr. *Vivian.*] Do you not think there would be difficulties in the navigation of the Bristol Channel in a dark night and at dead low-water spring tides?—I am not sufficiently acquainted with it to give any opinion upon that. From what I have heard, and from my experience of what the Great Western steam-ship has done, I should say there would be no difficulty.

935. The usual practice with the Bristol steamers is to start at the top of the tide and go down with the ebb, so that they may have the tide with them in their passage down Channel, and the flood on the Irish coast?—Yes.

936. Do you not think there would be occasionally delay if they were to start at other times of the tide?—I am not able to state what difference it would make.

937. Mr. *Morgan.*] Has Bristol a great trade with South Wales?—It has a considerable trade with South Wales.

938. Would the effect of having a post-office communication direct from Bristol to the South of Ireland very much affect the trade of Bristol and South Wales; or how would you propose to make good the correspondence between Bristol and South Wales?—From Merthyr, and all that neighbourhood, down as far as Cardiff, I think the letters would have to come from Bristol.

939. What would you do with the Swansea letters?—It would certainly be injurious to the Swansea letters if they came round by Bristol; of course they would be some time longer on their way.

940. Mr. *Vivian.*] If Bristol by Milford is 10 hours nearer to Waterford than by Liverpool; Cardiff, Newport, and every other place in South Wales, would be proportionably nearer to Waterford than Bristol would be?—Yes.

941. Mr. *Morgan.*] Do you not think that the arrangement that is now suggested, of having a direct communication from Bristol to the South of Ireland by steam-boats, without going through South Wales, would be extremely injurious, and very inconvenient to the whole of the southern part of the Principality?—I think it would be injurious to the extreme southern part.

942. To the whole of the mining and manufacturing districts of South Wales, from Pembroke to Newport?—I do not think it would be to Merthyr, or Cardiff, or Newport.

943. Would not the letters have to go from Newport to Bristol, or from Cardiff to Bristol, in order to go to Ireland; and would not that be a great impediment?—I think there would be so very little difference in the time, that

that the greater certainty there would be of their letters going without any delay from Bristol would make up for it.

944. Is there any uncertainty in letters going now ?—I think there is.

945. Have you ever known it ?—I have known it frequently; so much so, that I have no confidence in their going; I would not depend upon a letter going by Milford.

946. Have you ever known a letter not go ?—It might as well not go as be a week in going.

947. Have you ever known a letter a week in going ?—I have.

948. Was that from delay in crossing the Channel ?—Yes.

949. If there is delay in crossing the Channel at one point, there must be delay in crossing the Channel at another ?—No, I think not.

950. Was the delay on the passage in consequence of the weather ?—Yes.

951. Then would there not be delay in crossing from Cardiff to Bristol, when there was delay in crossing the Old Passage ?—I believe the steam-boats between Cardiff and Bristol have been able to perform the voyage when there has been a very great difficulty in crossing the Passage.

952. Such steam-boats as there are now ?—Such steam-boats as there are now even.

953. At all times of the tide and in all states of the weather ?—Not at all times of the tide, but certainly when the weather has been very bad.

954. Have you ever known either of the steam-boats stopped or delayed in consequence of the weather ?—No, I cannot say I have.

955. You cannot say they have not been ?—No, I cannot; though I think it is likely if they had been stopped I should have heard of it.

956. With regard to the uncertainty of the passage, to what do you attribute that; do you attribute it to the inconvenience of the Aust Ferry or to the inefficiency of the packets at Milford ?—To the inefficiency of the packets at Milford; that is the impression on my mind.

957. Then if the Aust Ferry were improved and there were proper packets at Milford, do you think there would be that uncertainty of which you now speak ? —If there were better packets at Milford, I think there would be greater certainty of the mail getting across, as far as regards letters.

958. Do you think there would be greater difficulty in proper packets crossing from Milford to Waterford than from Bristol to Waterford ?—Not with equally good packets; if the packets were the same, I do not see that there would be any difference.

959. Sir *Denham Norreys.*] As a merchant, which should you say is of the greatest importance, to have occasionally very great rapidity in post-office communication, attended with occasional delays, or to have regularity of post-office communication ?—I should consider a regular communication the best.

960. You would prefer a line of communication which would give you a certainty of 40 hours to one which would give you occasionally 30 hours, and occasionally 50 hours ?—I would.

961. Mr. *Miles.*] Are you in the habit of sending by the Milford line to Waterford ?—If I get an order after the North mail goes, or in case there is no packet going direct, I then, as a mattter of course, write by Milford, but I always send a duplicate next day by Dublin.

962. Mr. *Morgan.*] If there is a packet going direct to Bristol, you send that way to Waterford ?—Yes.

963. Mr. *Miles.*] Would you be able to get the goods back by the next steamer to Bristol, supposing you were to send the order by Milford ?—I think not.

964. Should you be able to do so if you sent direct from Bristol ?—Yes, I have done so. It generally occurs at those times of the year when the goods are particularly required, so that unless we can write by the Bristol packets, we cannot procure them in time.

965. Then you prefer writing by the Bristol packets to any other mode ?— Yes, we do.

966. Mr. *W. Johnson.*] If a new line of packets were established from Bristol to Waterford, should you consider it necessary to send a duplicate ?—I should, until I got confidence in the line; if I found that letters were correctly delivered, I should not.

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967. On what do you ground your want of confidence at present?—Upon letters not coming direct to hand.

968. What do you attribute that to?—The delays on the line.

969. On what part of the line?—I cannot say; but I should suppose between Milford and Waterford.

970. Then, if there were good packets established there, which line would you send your letters by, Liverpool or Milford?—I would still continue to send my letters by the Liverpool line.

971. Mr. *Morgan.*] If you had a post-office communication direct from Bristol to the South of Ireland by steam, would you then think it necessary to send a duplicate by Milford or Liverpool, or any other way?—No, I do not think I would.

972. Sir *Denham Norreys.*] Can you not send a ship-letter now by the packets from Bristol to the South of Ireland?—

973. Do you ever do so?—Yes, always, by any of the packets that are sailing.

974. Then do you send a duplicate by Dublin too?—No.

975. Mr. *W. Johnson.*] Do you consider a letter sent by the line of packets from Bristol to the South of Ireland more certain to go than those sent by Milford?—Yes.

976. Mr. *Miles.*] Is any bag made up to go by the Bristol packets to Ireland by the Post-office?—There is, by all the packets.

977. Mr. *W. Johnson.*] Is there a bag made up in Ireland of letters sent by the Bristol packets?—There is.

978. Is that made up by the Post-office?—It is.

Mr. *Thomas Parsons*, called in; and Examined.

Mr. *Thomas Parsons.*

979. *Chairman.*] YOU are Postmaster of Waterford?—Yes.

980. At what hour does the mail packet leave Waterford for Hobb's Point?—When the coaches keep proper time, the mails should be on board the packets every morning at 15 minutes after six o'clock.

981. Do you wait for the coaches?—Yes, always.

982. Are they often behind time?—In the winter months, probably half an hour or an hour; and sometimes two or three hours.

983. What number of towns do the coaches come from?—One from Limerick and Clonmel, and one from Cork.

984. Then I understand you despatch the mail from those towns and Waterford by that packet?—Yes.

985. To what places do you send mails by the packets to Hobb's Point?—To Hobb's Point, Tenby, Haverfordwest, St. Clare's, Pembroke, Swansea, Narberth, Carmarthen, Bristol, and London.

986. What mails do you receive in return?—From all those towns to which bags are forwarded, except from London; we receive no mail from London by Hobb's Point.

987. Do you receive letters by these packets from places west of London; for instance, between London and Bristol?—I think they all go round by Dublin.

988. Mr. *Miles.*] Would a Bath letter go round by Dublin?—Yes, I think so; I think the general course is by Dublin.

989. *Chairman.*] Do you send a mail to London *viâ* Dublin?—Yes; a mail is despatched every evening at six o'clock to Dublin.

990. Then you have two mails to London and one from London?—Yes.

991. How do you send letters to the South of England from Waterford?—Both by Dublin and by Bristol. Letters for Southampton are sent to London, and letters for Cornwall go by Bristol.

992. You send letters for Southampton by London?—If a letter be posted at Waterford before the departure of the Dublin mail at six o'clock, it goes round by Dublin; and if posted after the departure of the Dublin mail, it goes by Hobb's Point, and on to London, to go to Southampton.

993. What is the average time occupied by the Milford packets?—About 13 hours. They go quicker than they come. That is put down as the average.

994. Both ways?—Yes, thereabouts; that is the general average.

995. Mr. *Reade.*] That is to Waterford Quay?—Yes.

996. *Chairman.*]

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996. *Chairman.*] At what hour is the mail despatched from Bristol to Waterford?—Ten minutes before six in the morning.

997. With your average of 13 hours, what is the time occupied from Bristol to Waterford?—About 30 hours.

998. At what time does the mail from Dublin arrive in Waterford?—At nine o'clock in the morning.

999. At what time does the packet arrive from Hobb's Point?—At an average about noon.

1000. Is that a convenient arrangement for the merchants, getting one set of letters at one time, and another at another?—No, quite the reverse; they would rather have their Welsh correspondence delivered with their correspondence from Dublin, because they have to be watching the arrival of the Welsh mail, which in the winter months is very uncertain.

1001. Do you think there would be an advantage if the Hobb's Point mail were made to come in as soon as that from Dublin?—Certainly: that is what the merchants particularly desire, for then they receive their Dublin and Welsh letters at the same time.

1002. Does much of the correspondence of the South of England come by Milford?—Very little, it is nearly all sent round by Dublin; but it may be well to remark, that there is a considerable correspondence from the South of Ireland passes by Hobb's Point for South Wales, the South of England, the West Indies, and other parts of the world.

1003. And the return correspondence?—It is sent round by Dublin; that is the difference.

1004. Can you give any opinion as to the utility of the Milford packet station?—It has appeared to me for a long time, that the Milford packet station ought to be discontinued or removed to the neighbourhood of Bristol.

1005. Why do you think it would be an advantage to remove it to the neighbourhood of Bristol?—The circulation of the letters would be so much quicker from the South of England to the South of Ireland.

1006. By the South of England; do you understand what is generally called the West of England as well?—Yes, Portsmouth and Falmouth, and all places to the south of Bristol.

1007. Is there much communication between the South of Ireland and the West Indies?—Yes, a good number of letters pass; chiefly from the counties of Cork and Limerick.

1008. Do they pass through Waterford?—Yes; and very likely many may be sent *viâ* Dublin, of which I know nothing.

1009. Can you state to the Committee how you think the advantage of a quicker circulation could be obtained by the proposed alteration?—At present a letter posted in Waterford on Monday evening at five, and forwarded to Dublin, is not delivered in London till Wednesday evening; and the answer to that letter, provided it be written the same evening, would not be due in Waterford and ready for delivery before 10 o'clock on Friday morning. Again, a letter for Southampton posted on Monday in Waterford at five o'clock, would not be delivered in Southampton until the Thursday morning, and the answer to that letter would not be due in Waterford until Saturday. Now if there were a packet station in the neighbourhood of Bristol, a letter posted any time of the night of Monday, and leaving Waterford at five o'clock on Tuesday morning, would be due in London on Wednesday morning at six o'clock; and if addressed to Southampton, it would be due there at an early hour on the same day; and the answer to that letter (for they would probably make new arrangements at Southampton) would be due in Waterford at eight o'clock on Thursday evening.

1010. Would that letter arrive too late for delivery in Waterford the next evening?—No; we deliver them until nine o'clock.

1011. If those advantages apply to Waterford, what would be the advantage to Cork?—The advantage to Cork would be decidedly great; for, notwithstanding that Cork has two daily mails, *viâ* Dublin, to London and the South of England, the transmission of them is very tedious compared to what it might be under the proposed new arrangement; for instance, an answer to a letter posted in Cork, at seven o'clock on Monday evening, for London, and forwarded *viâ* Waterford and Portishead, should be due in Cork at eight o'clock on Friday morning.

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1012. What time would it take a letter to go in the quickest way by the present arrangement, so as to get an answer?—A letter from Cork, posted at five o'clock on Monday evening, would he due in London on Thursday morning, and the answer to that letter would not be due in Cork until Saturday afternoon, at half-past three.

1013. That is Saturday afternoon, instead of Friday morning?—Yes.

1014. When you say Cork, I presume the same advantages would apply to the intermediate towns, such as Clonmel?—Clonmel might gain a day in its correspondence with Southampton.

1015. Also to Dungarvon and Youghal?—Dungarvon and Youghal would have a great advantage; they would have their letters at an early hour in the morning. At present a letter posted in Clonmel at five o'clock in the afternoon of Monday, is not delivered in London until Wednesday afternoon, and the answer is not due until Friday morning. If a letter were sent from Clonmel to Southampton on Monday evening, it would not be delivered until Thursday, and the answer would not be back to Clonmel until Saturday; but by the new arrangement it would be due on Friday morning.

1016. The same advantages would apply to Clonmel as to Waterford?—The answer would be due in Waterford on Thursday evening, and in Clonmel on Friday morning.

1017. Would it not be an advantage that the letters you state as leaving Clonmel on Monday, should be delivered in London on Wednesday by the morning delivery?—Yes.

1018. So as to secure an answer by Wednesday evening's post?—Yes; that would be the great object in view.

1019. Do you think, besides the advantage to Waterford, Cork, Limerick, and the intermediate places, any towns north of Waterford would derive any advantage from a daily mail?—I think Ross and Wexford, which have considerable trade and correspondence with the South of England, would derive great advantage by the change.

1020. It has been matter of consideration which would be the most advantageous post, Cork or Waterford, in a Post-office view of the matter; what is your opinion thereon?—I conceive that Waterford would be far more desirable for the intercourse with the South of Ireland; and again, I think Cork would have all the advantages of a direct communication, by receiving her letters through Waterford. Supposing a packet station were established at Waterford, the letters for Cork would leave Waterford at midnight, and would arrive at Cork at half-past eight o'clock the next morning; if the packets went direct to Cork, a letter leaving Portishead at three o'clock in the morning would he due in Cork about one o'clock the next morning; therefore the letter would remain either on hoard the packet or in the post-office until seven o'clock, and the answer to that letter would he sent from Cork about midnight, so as to arrive at Portishead in time for the next mail going to London. So that it would be precisely the same in point of time with respect to Cork as to Waterford, only that Cork would have the advantage of a delivery a couple of hours earlier, and a later hour to answer letters.

1021. If the packets were established straight to Cork, they would have that advantage?—Yes; they would receive their letters at seven o'clock instead of nine, which is nothing in a commercial view, I believe; merchants generally consider nine or half-past nine a proper time for receiving letters, and instead of posting their letters if they came by Waterford at seven o'clock in the evening, they would have till eight or nine or ten, which is the only difference I can see. The advantage with respect to Waterford is, that the mail is travelling at night and arrives in Cork only one hour later than letters would he delivered if they went direct.

1022. Suppose packets to he established to Cork, what would he the effect upon the towns east of Cork?—There would not he much difference with respect to Clonmel and Limerick, because the mails leaving Cork at an early hour could be delivered at those towns in the course of five or six hours; but with respect to Ross and Wexford there would be a day's loss; at Carrick also there would he a loss.

1023. Is there much correspondence between South Wales and the South of Ireland?—Yes, there is considerable correspondence, particularly with Swansea, Cardiff, and Newport.

1024. Supposing

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1024. Supposing the proposed plan of moving the packets were carried into effect, how would it affect the correspondence between the South of Ireland and those places you have mentioned?—The change would be of advantage as respects Cardiff and Newport, for at present a letter posted in Waterford on Monday night is not delivered in either of those towns until Wednesday morning, and the answer is not due in Waterford until noon on Friday; but if sent by Portishead or Brean Down, the answer should be due on Thursday evening; it is likely by the change that Swansea should lose eight hours, and the other towns going on to Hobb's Point should be delayed more.

1025. If the packets were removed as proposed, would you have the letters for the South of Ireland generally from London and the South of England conveyed by those packets?—Yes; not only letters to the South of Ireland, but all letters from the South of England.

1026. Would letters go from Yorkshire and the North to the South of Ireland in that way?—Yes, I think so, on account of the railroads.

1027. Mr. *Reade.*] If you had a letter to send from Birmingham to Waterford, how would you send it?—It would go by Liverpool.

1028. But suppose you had these packets?—I certainly think by Waterford.

1029. *Chairman.*] From your general knowledge of the trade and correspondence between the two countries, would you think it advantageous that there should be a daily fast packet established between Bristol and Waterford?—I think it would be a very great advantage to Waterford, and a very great advantage to Bristol too, to have a daily communication.

1030. Through the opinion that there would be an influx of passengers?—I think there would be a great many more travelling.

1031. Mr. *Morgan.*] You have stated there would be a great advantage to Cardiff and Newport by the proposed change; will you state what advantage it would be?—A letter at present posted in Waterford at any time during Monday night, and leaving Waterford on Tuesday morning at six o'clock, arrives at Hobb's Point on Tuesday evening, and arrives at Newport on Wednesday morning; the answer to that letter would leave Newport on Thursday, and be ready for delivery, on an average, at half past 12 P. M. on Friday; if sent by Portishead the answer should be due on Thursday evening.

1032. Then between the post-office at Waterford and Hobb's Point there is a considerable time lost?—We allow that time to ensure the arrival of the packet at a fixed hour.

1032*. The mail is stopped at Waterford all night, so as to wait for the Limerick and Cork mails in the morning?—Yes.

1033. How would a letter go from Waterford to Newport or Cardiff if these packets were established?—Perhaps the best way would be to have a small steamer at Cardiff to bring them to or from Portishead.

1034. Then there must be a communication by a small steamer between South Wales and Bristol?—Yes; between Cardiff and Portishead.

1035. Then all Newport letters, and all Ahergavenny letters, and letters from the South, must be concentrated at Cardiff in order to come to Bristol, and so to Ireland?—Yes, or rather to Portishead.

1036. Now, supposing the packets were established at Portishead, will you trace a letter from Ireland to South Wales by Portishead?—Suppose a letter posted on Monday evening, or any time during the night, leaving Waterford at five o'clock on Tuesday morning, it would be in Portishead at midnight on Tuesday, and might be ready for delivery at Newport at nine or ten o'clock on Wednesday; then giving the greater part of the day to answer the letter at Newport, it would be at Portishead at three o'clock the following morning, and would be due in Waterford at eight o'clock on Thursday evening; that is allowing 17 hours as the time between Portishead and Waterford.

1037. Is that the general passage between Portishead and Waterford?—I have been told that that would be about the average passage.

1038. Mr. *Grogan.*] Taking 17 hours as the average passage, which perhaps, under all circumstances, must be considered a favourable passage, if there were a delay of two hours, could a letter be delivered in Waterford that night?—No.

1039. Then they would lie in the office that night?—Yes; but I have allowed in my calculation four hours as a margin for sending off the mails to Limerick and Cork.

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1040. Then, taking the average of the seasons, there would be a chance of a letter going from Portishead remaining at Waterford all night?—Yes, for the Waterford delivery.

1041. And consequently a greater loss of time in receiving an answer to that letter than at present?—No; because the letter would be ready for delivery the following morning at seven, whereas by going by Hobb's Point, it would not be ready on an average until about 12 h. 30 m. P. M.

1042. Sir *D. Norreys.*] You consider the certainty of post-office communication to be the object to be attained?—Yes.

1043. At what time do you consider the Hobb's Point mail due at present?—At noon.

1044. What time does it start from Hobb's Point?—At about 11 o'clock.

1045. That is 13 hours?—Yes.

1046. Does it often arrive within 14 hours?—Yes; in 10, 11, or 12 hours.

1047. Does it often arrive in 13 hours?—Yes; and it is sometimes 16 or 17 hours.

1048. Is it more frequent after the 13 hours than before?—Yes.

1049. At what time is the earliest mail despatched from Waterford, which depends upon the arrival of the Hobb's Point mail?—We delay no mail for the Hobb's Point mail.

1050. Supposing the packet to be due at 12 o'clock, at what hour does the earliest mail start from Waterford which would carry letters brought by Hobb's Point?—Three o'clock.

1051. Where is that to?—To Clonmel.

1052. What letters would that convey?—Letters to Piltown, Carrick, and Clonmel.

1053. At what hour would the Limerick mail be despatched?—At eight o'clock in the evening.

1054. And what hour the Cork mail?—At eight o'clock in the evening.

1055. Can you account why, in the Return which has been forwarded by the Post-office to this Committee, it is stated that a letter posted at Bristol for Cork on Monday would take 30 hours to Waterford and 50 hours to Cork, making a difference of 20 hours between the two towns?—The Bristol letters for Cork do not come by Waterford.

1056. Can you account for it appearing in the Post-office Return that there would be 20 hours difference between the time of the delivery of letters at Waterford and the delivery of letters at Cork, supposing they come by Hobb's Point?—The letter would arrive in Waterford at noon, and remain in the Waterford office until 8 P. M., and arrive in Cork at eight the following morning.

1057. Is that the actual time taken?—It gets to Cork at about eight o'clock the next morning.

1058. Then there is eight hours detention in Waterford?—Yes.

1059. On what account, or for what reason is it that a Cork mail is despatched at that precise hour of eight o'clock; is there any reason why the mail should not be despatched at three or four o'clock?—Letters for Cork *viâ* Cahir, are sent by the Limerick mail, which leaves Waterford at eight o'clock in the evening. We also despatch a mail from Waterford in the morning at half-past nine for Cork.

1060. Then there is another Cork mail?—Yes, one going by Dungarvon and the other going by Cahir and Fermoy.

1061. Then there is a mail for Cork in the morning?—Yes.

1062. And the mail by which the letters from Hobb's Point to Cork would be despatched would be sent off in the evening by another mail?—Yes.

1063. What mail is that?—The Limerick mail.

1064. Is not that by the Limerick mail?—Yes.

1065. And the bags are separated at Clonmel or Cahir?—Yes.

1066. Is there any reason why the Limerick mail should not be despatched at an earlier hour in the evening?—No, I cannot see any reason.

1067. Is it not that the hour of eight was established for the purpose of allowing a delay in the arrival of the packet?—I think it is very likely.

1068. Then letters are detained from nine or ten in the morning until eight at night, in order that the mail may not frequently be despatched without the letters

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letters that arrive by the packet?—Yes; and as there would be no advantage for them to arrive in Cork or Limerick during the night.

1069. Consequently, there is a margin for irregularities in the arrival of those packets of eight or ten hours in the passage from Milford to Waterford? —I do not know that it is exactly in that way, because, of course, there is a good deal of communication from Waterford, and the time of sending off the mails might be delayed on that account.

1070. But if it were not for the packets, would not the Waterford letters be despatched at five or six o'clock?—That would answer little purpose, because they would get to Cork at night.

1071. Would not a greater margin for irregularity in the arrival of the packets be required if the passage were to be lengthened in the way you propose?—No, I think not; I think four hours would be sufficient.

1072. Does a reference to the length of passage in any line of packets with which you are acquainted, justify you in stating that a four hours' margin for irregularity in arrival would be sufficient for a passage of 220 miles?—I only make it about 183 nautical miles; and according to the account I got of the boats that were to be put on the station, I thought four hours would be sufficient.

1073. Then probably there would be only one despatch to the interior from the port of arrival in the day, either to Limerick or to Cork?—Yes.

1074. Consequently, if your four hours were over-passed in the arrival of the packets from Portishead, a letter would be delayed 24 hours in your post-office? —Yes.

1075. Which do you consider would be the most advantageous for Limerick, Cork, and generally for the South of Ireland, that there should be a post communication established between Portishead and some port, whether Cork or Waterford, upon the South of Ireland, or that the communication with Dublin should be made as perfect as possible, by means of a railway to Holyhead, and that all the communication should arrive by that mode?—I think it would be a great deal more desirable to have the communication direct from Portishead to the South of Ireland, through the Bristol Channel.

1076. Would there not be a greater certainty of arrival by the Holyhead line?—It is a shorter voyage; but last quarter there were six mails missed from Liverpool to Dublin, and there were 24 hours lost.

1077. You state they were delayed 24 hours in Dublin, because the packet arrived too late for the evening mail?—Yes.

1078. Is there not a morning mail from Dublin to Cork?—Yes.

1079. And is there not a morning mail from Dublin to other towns in Ireland?—Yes; but I am speaking of Waterford, and Limerick is similarly situated; Cork has the advantage of a double mail.

1080. Would there be any great disadvantage to the Post-office in taking advantage of the conveyances which leave Dublin in the morning for different towns, with proper regulations being entered into with the proprietors?—No; however, I do not think there would be much advantage in that plan, because the letters should be travelling all day, and getting to the towns at night, which would be an objection; what is wanted is, that the letters should leave Dublin at night, and get to the towns in the morning.

1081. Is it not a great advantage to have two mails daily from Dublin, one in the morning and one in the evening, so that any slight irregularity in the arrival of the packets from Liverpool might be remedied?—To Cork it is a great advantage.

1082. Is it not felt in Cork to be a great advantage having that double mail? —Certainly.

1083. Would it not be equally felt by other commercial towns in Ireland?— I think not in the same way, because Cork is placed at such a distance that the letters get there in the morning.

1084. How many hours is Waterford from Dublin?—Twelve.

1085. How many miles an hour does the mail travel?—About eight.

1086. How many miles is Waterford from Dublin?—Ninety-six English miles.

1087. Is there any reason why the mail should not travel nine or ten miles an hour on that road?—I see no reason.

1088. Is there any reason why your mail should not arrive at Waterford from Dublin in ten hours, or less?—I see no reason, except the expense of the contract.

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1089. If there were a mail despatched at six o'clock from Dublin to Waterford, you would receive the letters there at four o'clock; would that he too late for the convenience of merchants?—Yes.

1090. Would it not he preferable to keeping the letters in Dublin 24 hours?—Certainly.

1091. Even if you receive letters late during the day-time, it is preferable to remaining until the next morning?—Some merchants, when speaking of the Milford station, have wished it was done away with, that they might not be at the trouble of watching for their letters, because the time they wish to receive them is the hour of business.

1092. Would not that irregularity be much increased if you increase the voyage by which you are to get those letters?—No, I think not, provided that efficient packets be placed on the station.

1093. Would not the chances of irregularity be increased by increasing the voyage?—I think not.

1094. Do you think you can get as much regularity by sea as by land?—I think more so, with good packets; of course, I put railroads out of the question.

1095-6. Mr. *Morgan.*] You have been speaking of the irregularity of the passage; do you not think that irregularity would be very much obviated if proper packets were established between Hobb's Point and Waterford?—A great deal of it might, for the packets have not sufficient power to contend against strong head winds.

1097. I think you have stated that a letter put in at Waterford on Monday night leaves Waterford by the packet on Tuesday morning at six o'clock?—Yes.

1098. And it leaves Hobb's Point on Tuesday evening about midnight?—Yes.

1099. Then there is a considerable loss of time there?—Yes.

1100. If there were efficient packets established, would there necessarily be 18 hours intervening between the departure of the post by the packet from Waterford, and the departure of it again from Hobb's Point?—If there were good packets upon the station, they would arrive much earlier. The present packets are quite inefficient during the winter months.

1101. If the London mail leaves Hobb's Point at midnight, and the passage is made in 12 hours, the packet need not leave Waterford untill 12 at noon?—No, I think not, or at least much later than it does at present.

1102. Then the letters for Bristol or Newport might be posted at 12 o'clock on Tuesday morning or forenoon, instead of Monday night?—Yes.

1103. Then 12 hours at least might be gained by that?—With respect to Waterford, the accommodation would be very great; but the difficulty would be as to Cork and Limerick.

1104. Why would not the advantage be as great to Cork?—Owing to the time the mails are despatched.

1105. Cork would not derive any disadvantage?—No.

1106. If this proposed arrangement were to take place, Newport and Cardiff, you say, would be to a certain degree advantaged, though to no great degree; but the whole of South Wales would be placed in a very unfortunate position, would it not?—Yes; or rather the lower part, or western portion of Wales, should be placed in a worse position than it is at present.

1107. As their letters would have to go back to Bristol from Carmarthen and Pembroke, for the sake of going back to Ireland?—But the way I viewed it was to have a steamer at Cardiff, and the letters to be forwarded from that town to Portishead, or Brean Down.

1108. But still the letters must go by Portishead?—Yes, if they were to go by Cardiff and Portishead, there would be one day's delay as to all the lower parts of South Wales.

1109. There would be one day's delay in writing, and one day's delay in getting an answer?—Yes, or nearly so. The great bulk of correspondence is to Swansea, Cardiff, Newport, Monmouth, and Merthyr Tydvil, but Merthyr Tydvil would have the same advantages as Newport. All the lower parts of Wales should experience a delay. Some years ago it occurred to me it would be a decided advantage to have the packet station in the Bristol Channel, and by starting at an early hour to have the daylight to touch at a place called Dale's Bay, to take off the Welsh mails.

1110. Mr. *Miles.*] You stated that a letter starting from Waterford at six

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o'clock on Tuesday morning, would arrive at Portishead at 12 o'clock at night, and would be delivered at Newport the next morning at nine or 10 o'clock?—Yes; that is allowing 19 hours to make the voyage to Portishead, or Brean Down.

1111. If it arrived at Portishead at midnight, is there any reason why it should not be delivered at Newport very early in the morning?—No, none at all, for the steamer might leave Portishead or Brean Down for Cardiff at three o'clock in the morning.

1112. It would be delivered at eight or nine o'clock in the morning?—It might be ready for delivery at eight o'clock.

1113. Supposing a day mail were sent to and from London (which would most likely be proposed, if the line were adopted) and that mail were to start from Portishead at five o'clock, would not the answer to a letter which started from Portishead at five o'clock on Tuesday morning, get to Waterford at 12 o'clock the next night, and be delivered the day after?—Yes, it would be delivered the next morning.

1114. Mr. *Morgan.*] When would that be delivered at Waterford?—It would be ready for delivery at seven o'clock on Wednesday morning.

1115. That would be 26 hours?—Yes.

1116. A letter leaving Portishead at five or six o'clock on Tuesday morning, would be delivered in Waterford at seven o'clock on Wednesday?—Yes.

1117. Then at what time would the next packet sail from Waterford to bring the answer back?—At about one o'clock in the afternoon.

1118. Mr. *Grogan.*] How many hours does the mail take going from Cork to Waterford direct?—Eleven hours; the distance is about 88 English miles.

1119. What time does it take from Waterford to Limerick?—Nine hours and a half; the distance is 76 English miles.

1120. Now you stated, that supposing there were a new line of packets of a superior class, and a harbour in the Bristol Channel, all the letters from London and the North of England to the South of Ireland, would, in your opinion, go by the south line instead of by Dublin; will you state how many hours, according to the present Post-office arrangements, a letter takes coming from Waterford to London; supposing it leaves Waterford at six o'clock in the morning, when is that letter actually delivered in London, according to the present arrangements?—A letter posted in Waterford on the Monday night, leaving on Tuesday morning, is not delivered until Thursday morning in London.

1121. Then the answer might leave London the same evening?—Yes.

1122. When would that arrive in Waterford?—On Saturday morning.

1123. Then it is actually *en route* from Tuesday morning to Thursday morning, then remains in London one day, and the answer comes back on the Saturday?—Yes.

1124. Is that by Hobb's Point?—We get no mail from London by Hobb's Point; we send a mail to London by Hobb's Point, but we get no mail from London that way.

1125. Then it takes the same time either way?—Yes.

1126. Then suppose these arrangements were perfected, and that the stations were in the Bristol Channel, with improved boats, what time would it take to go from Waterford to London?—Twenty-three hours.

1127. And of course the same returning?—Yes.

1128. Now, will you go a little higher up, to Manchester, for instance; what time would a letter take from Waterford to Manchester by the proposed route?—That would depend upon the railroad arrangements between Bristol and Manchester, of which I cannot speak; but I think there would be a great advantage in getting the mails from the North of England for Waterford round by Bristol.

1129. Mr. *Miles.*] In short, you think it would be better to go the whole distance by railroads in England, than by the common roads in Ireland?—Yes.

1130. Mr. *Grogan.*] What length of passage have you averaged, in your own mind, from Portishead to Waterford?—I have put down 21 hours as the full length; but 17 hours, I have been told, might be considered as an average.

1131. A letter from Waterford to Manchester, or any of the towns in the North, through Bristol, would occupy as much time as going through Dublin?—I am not able to state the time it would occupy. It occurred to me, that letters from the North of England would be ready for delivery two hours earlier in Limerick *viâ* Portishead and Waterford, than going by Dublin. The

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route I supposed was from Birmingham to Swindon to meet the London train going to Bristol, which would take on the letters, and they would get in the next evening to Waterford, and the following morning to Limerick.

1132. Then, taking it at 23 hours to Waterford, you allow 11 hours more to Cork, that is 34 hours?—I would allow a margin of four hours for the arrival of the packet in Waterford, therefore the mail for Cork should not be despatched until midnight; and allowing eight hours for the journey, which by Clashmore is 74 miles, the mail should be due in Cork at eight o'clock in the morning; that is 35 hours from London to Cork.

1133. Mr. *W. Johnson.*] At what time does a letter leave Waterford for London?—There is one departure at six in the evening, by Dublin, and another in the morning by Hobb's Point.

1134. How long does it take a letter going by Hobb's Point to reach London?—A letter posted in Waterford on Monday night, and leaving on Tuesday morning at 6 o'clock, is not in London until Thursday morning.

1135. The answer goes by Dublin?—Yes.

1136. How long does it lie in Dublin?—The answer leaving London on Thursday evening should be due in Dublin about eight on Friday evening, and remaining one hour in Dublin, should be due in Waterford at nine o'clock on Saturday morning.

1137. Mr. *Murphy.*] Is there not an important class of towns in Ireland which would be served by having a communication direct with Cork; for instance, Tralee?—It occurred to me not, because Cork does not despatch the mails until after the arrival of the Dublin coach.

1138. Suppose a communication direct from London to Cork, would there not be a most important saving of time in the western districts of the county of Cork, and on towards Limerick and Kerry, by making Cork the port?—Yes; they might despatch the mail at five o'clock in the morning instead of nine or ten; but then the difficulty is about the mails from Dublin for Bandon, and several other towns beyond Cork, for the Dublin mail does not arrive in Cork until eight in the morning.

1139. I am talking of the English communication with Tralee, Ennis, Limerick, Skibbereen, Clonakilty, Bandon, and all the western parts of the counties of Cork and Kerry; would their correspondence with England be infinitely accelerated by having the communication direct with Cork?—Yes.

1140. The Limerick mail now starts at nine in the morning from Cork?—Yes, provided that the mails are sent on before the arrival of the Dublin coach.

1141. In fact, would there not be time, if that communication were to take place, to enable the Limerick people to receive their letters and answer them by Cork or Dublin the same evening?—Yes.

1142. Are you acquainted with Brean Down in the Bristol Channel?—I have been there.

1143. What should you conceive would be the time occupied in going from Brean Down to Waterford?—About 16 hours.

1144. Do you know how long it takes to get from London to Brean Down by the railway?—I believe five hours or five hours and a half.

1145. I think you told the Committee that you thought greater regularity was achieved by sea travelling than by land?—Yes; I should like to explain that, because otherwise it may appear absurd. Some years ago there were commissioners sent to Ireland by Government; I was examined by one of them; I obtained an account of the arrival of the Bristol merchant packets; and, taking the very worst month I could select in the year, the month of February, when there were the most prevalent westerly gales, it appeared that during the month, if one letter had left Bristol by the merchant packets and another at the same time by the regular mail to Hobb's Point, there was a gain of 12 or 14 hours by the merchant packets. On examining into that, I found that the roads in South Wales had during that month been very much covered with snow; the packets could have got across from Hobb's Point very well, but the coaches could not get to the packets, and therefore I came to the conclusion that if there were efficient packets to start from some port in the neighbourhood of Bristol, that the transmission of the mails between the South of England and the South of Ireland could be greatly accelerated.

1146. Mr. *Morgan.*] You state 17 hours is what you reckon upon as the quickest passage from Portishead to Waterford?—No, but the average passage.

1147. That

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1147. That is with a new establishment of good packets?—Yes.

1148. How long do you think similar packets would take to make the passage from Hobh's Point to Waterford?—About 11 miles an hour.

1149. That would be about nine hours?—Yes, about nine or ten hours.

1150. You think the passage from Hobb's Point to Waterford could be made with proper packets in nine hours?—Yes, nine or ten hours.

1151. Mr. *Grogan.*] You stated that recently three mails coming to Waterford by Dublin missed?—Yes; it was within, perhaps, the month.

1152. Can you explain what it was that occasioned the delay?—I do not know; they came round by Dublin; we never hear anything as to the cause of those delays.

1153. You have no mail from Dublin, except the one at nine o'clock in the morning?—It leaves Dublin at nine in the evening, and arrives in Waterford at nine the next morning.

1154. Then there was a delay of 24 hours in those cases?—Yes.

1155. If an arrangement were made with the proprietors of the coaches to carry a day-bag, 12 of those hours would have been saved?—Yes.

1156. Would it not be desirable to do that?—I do not know; because we should not get our letters until late in the evening.

1157. Is it not a loss to merchants when their letters are delayed 24 hours in Dublin?—Yes; it would be an advantage if they could be sent off by a day-mail in time to get them; but if they are sent off in the morning, they cannot get them until the evening, and then they cannot well be answered until the next day, after the departure of the morning mail.

1158. *Chairman.*] Should you consider it worth while, considering the number of mails that miss by Dublin, to establish a day mail with that object?—Not at all.

1159. Should you consider it a great practical advantage, if it were possible for the proposed line of steamers from Portishead or Brean Down, to call off Milford, and take the mails on board?—It has occurred to me over and over again that it would be a most decided advantage to have the packets go into Dale Bay, because they get there in daylight, both coming from and going to Ireland, and provided they were such packets as are proposed, it could be done very well. The gain in leaving Brean Down instead of Portishead would make up for the loss of time.

1160. In that case the towns in South Wales, west of Newport, would not be losers by the change?—No; it would be just the same in point of time as regards them, and it would afford communication to the whole of Wales in other respects. There might be a steamer to bring the mail and passengers down to Dale, which is only a few miles from Milford.

1161. And the proposed change you have said would be a great advantage to the South of England, and to the foreign correspondence arriving at Southampton by the Peninsular and West India mails?—Yes; it is the natural line.

1162. In part of your evidence you have spoken of letters from Southampton; are you aware there is a mail-coach running direct from Southampton to Bristol?—I have heard of it.

1163. That of course would make the communication come very regularly from Southampton to Waterford, and the South of Ireland?—Yes, provided that it could be made to fit the arrival and departure of the packets.

1164. With respect to Brean Down, you said you had been there?—Yes.

1165. From your knowledge of the subject, do you conceive it would be an eligible station?—Yes, very much so.

1166. Is it tolerably well sheltered?—It appears to me to be sheltered from 20 points of the compass, and there are materials there for making a harbour.

1167. Then I am to understand you, that putting considerations of expense out of the question, you would recommend a line of fast packets to be established from Brean Down to Waterford, calling at Milford?—Yes.

1168. And that the Eastern mails should be brought from Cardiff to Brean Down?—In that case the whole might be brought down to Hobb's Point.

1169. Mr. *Morgan.*] You would carry the mails down to Hobb's Point the same as now through South Wales?—Yes.

1170. Then the letters by Hobb's Point would be delivered to the steam-packet from Brean Down at Dale, and the whole thing would be accomplished, and with immense advantage to the steam-boat proprietors?—Yes, very likely.

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1171. How would that arrangement fit in with the Northern letters which come to Gloucester, and are taken to Chepstow for circulation through South Wales?—I think the whole might pass in the same way down to Milford; I have supposed that the North mails would be taken from Birmingham to Swindon, and then on to Bristol with the others.

Veneris, 29° *die Aprilis*, 1842.

MEMBERS PRESENT.

Lord Emlyn.
Sir R. Ferguson.
Mr. Grogan.
Mr. W. Johnson.
Mr. Miles.
Mr. Morgan.
Mr. Murphy.
Sir Denham Norreys.
Mr. Reade.
Mr. Shaw.
Mr. J. H. Vivian.

LORD INGESTRE, IN THE CHAIR.

Captain *William P. White*, called in; and Examined.

Capt. *W. P. White.*

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1172. Mr. *Murphy.*] YOU are the Harbour-master at Cork?—I am.

1173. How long have you been so?—I shall have been so 22 years the 8th of August next.

1174. Previous to being harbour-master at Cork, I believe you had great experience as a seaman in commanding vessels?—Yes.

1175. I believe you have even circumnavigated the globe?—I have.

1176. Have you been in the habit of passing from Cork to Bristol in steamers?—I have, frequently.

1177. Are you able to tell us what are the dangers, if any, on entering Cork harbour?—There are no dangers in entering Cork harbour, after you have got as far as Ballycotton Island.

1178. How far is Ballycotton from the entrance to the harbour?—Six miles.

1179. I speak of entering the harbour?—There are no dangers at all to be apprehended in going into the harbour after leaving Ballycotton.

1180. Can you make Cork harbour in thick and foggy weather?—You can.

1181. Can you do that by heaving the lead?—Yes.

1182. What kind of soundings are there; are they regular or are they irregular?—The soundings are quite regular.

1183. Has it ever been your lot to enter the harbour in foggy weather in a steamer?—It has.

1184. How did you manage; was it by sounding?—By sounding. I will mention one instance which came within my own knowledge. Going from Liverpool to Cork, we made Ballycotton, and it came on so thick afterwards that we could not see the bowsprit end; and being compelled from want of coals to make the harbour notwithstanding the fog, we went from 20 fathoms water into 7½ or eight fathoms, until we saw the breakers, keeping the dips of lead going all the time at half speed.

1185. Did you make the harbour?—We did; we steered a course along shore after seeing the breakers, keeping the breakers in view.

1186. You made the harbour, notwithstanding the fog?—Yes, we run close to Roche's Tower.

1187. That is just by the entrance of the harbour?—Yes, that is the light at the entrance of the harbour; then there was no further difficulty in entering the harbour, because we were steering by the coast.

1188. Now, when you pass Roche's Tower, have you any difficulty in getting to an anchorage at Cove or Passage?—Not the smallest.

1189. Is there a harbour or pier at Passage for landing passengers?—There is.

1190. Can steamers land their passengers alongside that harbour at all times of the tide?—They can.

1191. Is

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1191. Is it not a perfect land-locked roadstead there?—Perfectly so.

1192. Now, you have had your attention drawn to the chart of the Bristol Channel?—Yes.

1193. Did you see the point of Brean Down there?—It was pointed out to me just now; I never saw it before.

1194. Now, from your knowledge of the Bristol Channel, and comparing the situation of Brean Down with Portishead, which should you think the preferable point of embarkation for steamers?—I should say Brean Down was certainly, provided there was a good harbour to go into, because I conceive the greatest danger is above the Holms. There are the Welsh grounds on one side, and the English grounds on the other, which you have to pass through.

1195. Those are shifting sands?—Yes.

1196. Can you form a judgment what would be the saving, in point of time, between starting for Brean Down, and starting for Portishead?—I should think it would make a difference of an hour and a half or two hours; it would depend, in a great measure, on the rapidity of the tide.

1197. Are you able to tell us, from your own knowledge, what are the lengths of voyages which have been made from Bristol to Cork by the steamers which now ply in fair weather?—I have gone from Bristol quay to the harbour's mouth, in fine weather, in 24 hours.

1198. Mr. *Reade.*] What time does it take from the harbour's mouth to Passage upon an average?—I should think an hour would be the full average; it could be done in much less time at flood tide.

1199. Mr. *Murphy.*] Now I need not ask you whether those steamers which now ply are very heavily laden going and coming?—They are particularly so at times; the one I came across in now was very deeply laden, and we had a strong gale from the eastward. We left Roche's Tower about six o'clock in the evening, with a strong gale a-head to the eastward; we never went less than 7 or 7 ½ knots an hour. The vessel was deeply laden, with a number of pigs on board.

1200. What is the average rate of the passage between Bristol quay and Cork?—I think, upon an average, from 28 to 30 hours to Bristol quay; except in very bad weather they are scarcely ever so much as 30 hours. Twenty-six or 27 hours is the general run in anything like decent weather.

1201. Now, supposing an iron boat of about 500 or 600 tons, with engines of 250 horses' power, how long, in your judgment, would be the average of the passage from Brean Down to Cork?—I think they ought to do it, except in very violent weather, in 24 hours; they would do it in less time in fine weather; I should suppose they ought to do it in 18 or 19 hours. I think the average would not be more than 20 hours, except in very violent gales of wind.

1202. What would be the average all the year round?—If it blew a heavy gale of wind the ship would not be able to go more than four or five knots an hour through the water; sometimes there is great difficulty to stem the wind. I should think, upon an average, giving them credit for fine weather, and debiting them with bad weather, they could never exceed 24 hours from Brean Down to Passage.

1203. Now, are you acquainted with the navigation to Waterford?—I cannot say I am particularly acquainted with the navigation inside the Hook Tower, but I have passed repeatedly inside the Saltees and outside, coming from Liverpool. I have been in Waterford, but not sufficiently often to be conversant with the navigation there.

1204. Now are there any difficulties in the navigation about the Saltees?—There are shoals and rocks about the Saltees, the Tuskar, and others, and the tide runs very rapidly between the islands in different directions.

1205. Are you able to tell me whether the soundings are regular there?—I cannot speak from my own knowledge; but upon the chart they are described as not regular; they run at the Light ship from 25 fathoms water to 15 or 16 fathoms.

1206. You are aware that Waterford is a bar harbour?—I am.

1207. Now, with reference to an answer that has been given here, supposing dead low water upon that harbour to be 14 feet, and a vessel were to try to run in in a gale of wind, should you consider that a safe experiment?—I should not. I should say, in a heavy gale of wind, crossing a bar of that description, there should be at least from five to six feet water; for in passing the bar there is generally a heavier sea than any where else, and the vessel lifting her how

Capt. *W. P. White.* and sinking abaft, generally unships her rudder, and the consequence would be very bad to her.

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1208. As an inference from your former answer, should you conceive, if a vessel drew only 10 feet of water, she could go into Waterford harbour at dead low water?—As an old seaman, I should be sorry to try if I could keep off the shore at all. If I were on a dead lee shore I should be obliged to attempt it; but I would not do it with so little as four feet water, in a heavy sea.

1209. With a strong southerly wind, what would be the lift of the water off the bar?—I should think there would be a fall of five or six feet.

1210. Suppose a party to pass the Hook Tower in foggy weather, and not to be aware that he had done so; do you think the navigation up to Waterford would be difficult?—I should think it very dangerous. I only go from the chart; I have no knowledge of my own to guide me.

1211. Supposing you did not know whether you were in Cork Harbour under these circumstances, that you had passed Roche's Tower without knowing where you were, do you think you should have the same difficulty?—I should have no difficulty whatever.

1212. Supposing you were not aware you were inside the harbour, could you by the soundings get safely in?—Yes; you would not attempt to run in, unless you knew you were past Roche's Tower. If you had not made that as a landfall, it would be dangerous to run in; but if you saw the light, you might make what anchorage you please.

1213. Now, is there not a rock off the Saltees called the Conneyheg?—There is a half-tide rock.

1214. Mr. *Reade.*] There is a floating light off there, is there not?—Not off the Conneybeg; the floating light is off the Saltees.

1215. Mr. *Murphy.*] Are you acquainted with the trade of Cork?—Yes.

1216. How many steamers go out of Cork regularly every week, and where to?—There are two from Cork to Bristol, two to London, one to Liverpool, and two to Dublin and Glasgow.

1217. Now, is it not a very common thing for vessels from abroad to call at Cork for orders?—Very common; it is the port they generally touch at coming to the westward.

1218. Is it not the best port to the westward, and where they would naturally go?—It is the only port they ever enter—vessels coming for orders, particularly bound up to Liverpool, or any of those ports, because it is nothing out of their way.

1219. Are you aware whether it is the habit of vessels calling for orders to leave their letters there?—Yes, most undoubtedly; we had an instance of two steam-packets, outward bound from Liverpool to America, returning to Cork, and the mails were so large, they had no means of conveying them. The mail-coach was not able to carry them, and the postmaster told me they were obliged to send them to Dublin by waggons. If there had been a conveyance from Cork to Bristol, they might have been sent on direct.

1220. Now, is there not a very large and increasing business between Cork and that portion of the country which lies to the south-west, Limerick, Tralee, and Kerry, generally?—There is a very large business; it is a very extensive country, Cork. Kerry, Tipperary, can be communicated with from Cork much quicker than the other way.

1221. Are you aware whether the ships' letters do not go from Cork through Cahir to Limerick?—I cannot exactly say; but I know last September we had two instances, one in the Victory and the other in the Queen, of having our newspapers in 27 hours; whereas if they come by Dublin and Liverpool they would have been 48 hours.

1222. That is from London?—Yes; we got the newspapers from London in 27 hours twice during these last easterly winds.

1223. Sir *D. Norreys.*] You have stated that you anchored, in your passage to Bristol, near the Holms?—Yes.

1224. What was it that obliged you to anchor there?—Because we could not save the tide to Bristol; we wanted a few hours to save the tide, in consequence of having a strong south easterly gale.

1225. Are you aware of two packets from Waterford or Cork, previous to your coming over, having been delayed in the Bristol Channel from fogs?—I heard from the captain of the Victory that they were, that he was in great danger from a fog.

1226. Where

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1226. Where did that happen?—Above the Holms; he came to the north side of the Holms, and expressed himself as being in very great danger for some hours, until the fog cleared away. There is a sunken rock which is about one-third of the way between the Welsh coast and the flat Holms, which is very dangerous.

1227. That difficulty would have been avoided had Brean Down been the point of arrival?—Certainly it would; the greater part of the danger is when you are at the Holms.

1228. You consider the great difficulty in the passage is from the Holms to Portishead?—Yes, in thick weather.

1229. Do you know enough of that channel to be aware of the difficulties of the navigation, from the strength of the tide?—Yes; I said before there are the English grounds on the one side and the Welsh grounds on the other, and if the weather is so thick that you cannot see where you are, you may be on shore very soon.

1230. That refers to thick weather?—Yes.

1231. But even in fine weather is not the navigation from the Holms up to Portishead greatly impeded by the strength of the current?—It is certainly upon the ebb tide; there is a stronger tide against you naturally.

1232. That also would be avoided by adopting Brean Down as the point of arrival?—Yes.

1233. Taking Brean Down as the point of departure, what would be the average difference of the voyage, as between Cork and Waterford?—I cannot well answer that question, for I never sailed from Bristol to Waterford; but I should suppose, from the difference in the distance, which is 36 miles, it would not be more than three hours or 3 ½ hours in such packets as I have described. With such packets they ought to do 11 knots an hour.

1234. Have you any means of knowing what is the average number of passengers which the Cork vessels bring?—No, I cannot exactly say that; there were about 31 cabin passengers came with me this time.

1235. Is that considered an extraordinary number?—No, it is not; I have frequently heard of their having 50 or 60.

1236. Persons come to Cork from all the South of Ireland to come over?—They do; they conceive it is the shortest passage, particularly coming from Cork, because they have the westerly winds; they are not so apt to go back from Bristol to Cork as come from Cork to Bristol, because of the westerly winds.

1237. Mr. *Morgan.*] Are there not generally more cabin passengers from Cork to Bristol at this time of the year than any others?—Yes.

1238. Sir *D. Norreys.*] A Bill has been obtained to make a railway from Cork to Passage, I believe?—Yes; it will be a long time before it is carried into effect, I believe; it is a wild scheme.

1239. *Chairman.*] You state you were 28 hours coming across the other day?—We were, after allowing the time we were at anchor; we were not above 27 hours before we came to an anchor.

1240. From your knowledge of the Channel, do you consider you are more likely to make a favourable passage with an easterly gale against you, or a westerly gale against you?—I think it would entirely depend upon the violence of the wind; there is always a strong westerly swell in winter time.

1241. You think you would make head against an easterly gale, sooner than against a westerly one?—Certainly; under those circumstances.

1242. Have you made a passage frequently from the Bristol Channel to Cork?—I have, very frequently; generally three or four times a year.

1243. Suppose a heavy gale of wind blowing against you, would you not get under the lee of the land as fast as you could?—Yes.

1244. Where would you make that lee of the land, with the wind dead a-head?—I would endeavour to get in under the Milford Islands; I would endeavour to make the Smalls.

1245. But off the Irish sea?—I could not get into any shelter off the Irish coast, with the wind right a-head.

1246. Would you not make the land between Waterford and Cork?—No; I would shape my course right across the Channel; I would stand off from the Irish land.

1247. Now, starting from Brean Down with the packets you have heard

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described, should you think there would be any practical difficulty in touching at Milford Haven, on the voyage to Cork or Waterford?—I think there would be a difficulty in bad weather with a southerly wind; I do not think a steamboat, unless she was a very powerful one, would steam out.

1248. Assuming they are very powerful ones?—Then I think they might do it. There is a strong wind sets into the harbour from the south-west.

1249. Do you know Dale Bay?—Yes.

1250. Suppose you were in a packet, and were ordered to touch there, would it not be much more out of your way, supposing you were bound to Cork, than it would be if you were bound to Waterford?—Certainly; I could not make a straight course if I went into Milford, going to Cork.

1251. Now, you have given some answers respecting the bar of Waterford?—Yes.

1252. From your own knowledge, do you know anything of that harbour?—No.

1253. Are you aware that bar is considerably within the harbour?—Yes, I know it is as far as Duncannon.

1254. Then is that bar as liable to a heavy sea as if it was outside the Hook Tower?—No.

1255. Do you happen to know the lowest spring tide upon the bar at Waterford?—Not from my own knowledge; but a captain of a ship who served his time out of Waterford told me it was only 10 feet.

1256. But you have no knowledge of it yourself?—No; only the Channel Pilot states it is 13 feet.

1257. You spoke of anchoring in the Bristol Channel; that anchoring would not have been necessary had there been a harbour at Brean Down or Portishead?—We could not reach Portishead; it was in consequence of the tide we could not go in.

1258. If there had been a landing-place at Portishead or Brean Down, should you have been under the necessity of anchoring?—Certainly not; we should have gone up with great ease.

1259. Mr. *Reade.*] Do they often miss the tide in the way you have just described?—In gales of wind they do.

1260. How often might that happen in a month?—In the winter time I believe it happened once or twice a month.

1261. That would be eight passages; how many times do they miss the tide in eight passages?—I cannot say from my own knowledge.

1262. Mr. *Grogan.*] I think you stated the average passage from Cork Quay to Bristol Quay was from 28 to 30 hours?—Yes.

1263. And you mentioned that recently the London newspapers were delivered in Cork in 27 hours?—Yes.

1264. Is not that rather singular?—No; they were only four hours and a half coming from London to Bristol, and the packet was only 27 hours coming across. She happened to sail at the time the mail arrived, and we had the newspapers of Tuesday morning early on Wednesday.

1265. *Chairman.*] If a line of packets were established between Bristol and the South of Ireland, would not something like that happen very often; that they would go in about 27 hours?—Yes, I should think it would; because if a heavy steamer could bring them across in that time, surely a light one could.

1266. Mr. *Reade.*] How far is it from Passage to Cork?—Six Irish miles.

1267. *Chairman.*] How long does the coach or mail-cart take to go that distance?—The jingles they have there, with a good horse, will run up in 40 minutes; I believe the mail-cart does it in less.

1268. Mr. *Vivian.*] When you speak of the average passage to Cork, it is with reference to good or bad weather, independent of tide?—Yes.

1269. And supposing the packets were to start as at present, and take the ebb down Channel?—Yes.

1270. Then supposing they had to go down Channel against the flood, what difference do you think it would make on the passage?—If they had to go against the tide, it would depend upon what time they got on their way.

1271. And against the ebb in going into Cork?—In Cork they would not mind it.

1272. What difference do you think it would make?—If you went away at half-tide you would have the flood against you so far, and you would have the benefit of the ebb before you cleared the Channel.

1273. Supposing

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1273. Supposing that the steamer were obliged to start at fixed hours, what do you consider would he the average passage?—Supposing any time to start from Brean Down, if they had the flood tide against them a considerable way, they would have the ebb with them to make up for that difference. If they stopped at the commencement of the flood, they would have the flood more against them than the ebb would make up for.

1274. What difference would it make starting at the first of the flood?—I should think not more than an hour, because what you lost upon one, you would gain upon the other; but the ebb tide in the lower part of the Channel is not so strong as it is in the upper.

1275. Sir *D. Norreys.*] When vessels put into Cork from injury, is there any facility for repairs there?—Yes, there is every facility for them now; there is a dry dock at Passage, and two patent slips at Cork.

1276. Can the machinery of steam-vessels be repaired?—They can; they are repaired by the St. George's Steam Packet Company.

1277. Can hoilers of the largest size be repaired?—They can, of any size.

1278. Are you aware of the fact of steam-engines of a very large size having been made in Cork?—No; steam-engines of a very large size never have been made to my knowledge; small ones have been, but for larger ones they generally prefer Liverpool or Glasgow.

1279. But they repair large ones?—Yes, as well as anywhere in the world.

1280. Mr. *Reade.*] Are large vessels launched from those slips?—Yes; they launched a vessel the day we sailed, of 500 or 600 tons; one of the largest vessels I ever saw built there.

Mr. *William James Shaw*, called in; and Examined.

Mr. *W. J. Shaw.*

1281. *Chairman.*] WHAT are you?—A Merchant in the corn trade, at Cork.

1282. Mr. *Murphy.*] What are those Tables you produce?—Tables of the tonnage duty upon vessels and goods, in the sequence of years from 1837 to 1841.

1283. Are they obtained from the Custom-house?—Yes, from the Harbour-office.

1284. With respect to the tonnage dues of a halfpenny a ton upon vessels calling for orders, do those Tables exhibit a continually increasing amount from the year 1837 to the year 1841?—They do; a continual and very rapid increase. All vessels calling at Cork for orders pay a halfpenny a ton duty, and that is returned to the Custom-house from the Harbour-office.

1285. Do all these vessels coming from abroad leave their letters there?—Yes; all vessels are bound by law to leave their letters at the first port they touch at.

1286. Will you state from those Tables what amount of tonnage, at a halfpenny a ton, was paid in those years?—The amount for the year ending in August 1837 was 57*l.* 0*s.* 4*d.*; for 1838, 73*l.* 3*s.* 9*d.*; for 1839, 127*l.* 6*s.* 6*d.*; for 1840, 177*l.* 16*s.* 7*d.*; for 1841, 181*l.* 12*s.* 10*d.*

1287. Will you state the number of vessels which called for orders at Cork or Cove during the last year?—About 300.

1288. And this year?—This year, up to the 1st of April, that is three months, above 100 vessels called for orders at Cove.

1289. All of which posted their letters at Cork?—Yes. In addition to those that called for orders, several put in from stress of weather; amongst others, Her Majesty's packet Penguin, from St. Thomas's, bound for Falmouth, and landed her mail; and Her Majesty's steamer Caledonia, from Liverpool to Halifax, had to put back to Cork and land her mails again. It took three days to send her letters up to Dublin, in consequence of the want of communication.

1290. I need not ask whether, if there had heen a steam-packet from Cork to Bristol, she would have conveyed it?—Certainly.

1291. Sir *D. Norreys.*] Is not Cork the principal port of departure from Ireland for troops on foreign service?—Yes, both on foreign service and to England. For the last two or three weeks, passengers have not been able to come over; the St. George's steam-packets have been entirely taken up by troops.

1292. Do these returns show the number of foreign vessels which have come into port during each year?—No, I should say they do not; they show the number

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number of foreign vessels calling for orders; the tonnage duty is merely paid upon vessels calling for orders.

1293. Are you able to state the total number of foreign vessels calling at Cork in those years?—No, I am not prepared with documents to that effect; there are means of showing that.

1294. Do the returns which you now produce show the amount of tonnage on all vessels calling at Cork for orders?—They do; they are divided into three divisions; first, the number of tons of general and foreign vessels at 3*d.* per ton; second, the number of tons of colliers at 2*d.* per ton; third, the number of tons of coasters at 1*d.* per ton. I believe all vessels are called coasters which come between England and Ireland, unless they go to the westward. That includes steamers.

1295. Can you state the amount of tonnage that has entered the harbour of Cork inwards, during the last year?—236,682 tons.

1296. Does that include steamers?—It includes everything.

1297. Does that return show the tonnage of exports?—It does not; the tonnage of exports is charged upon the goods, I believe; I see no account of their being charged on the vessel. I am not aware whether it is so or not. The tonnage duty upon the vessel is upon imports.

Mr. *Henry Peachey Williams,* called in; and Examined.

Mr. *H. P. Williams.*

1298. Mr. *Morgan.*] YOU are Superintendent of the Old Passage Ferry, I believe?—Yes.

1299. How long have you known that ferry?—More than 20 years.

1300. What is the rise and fall of the tide there?—About 50 feet in spring tides; that is about the highest.

1301. At what rate does the tide run?—At seven knots, or perhaps a little more in a very strong spring with a westerly wind.

1302. Does it run the same up and down?—Rather stronger up than down.

1303. Is there sufficient water for a steamer to cross at all states of the tide?—There is.

1304. What time does the steamer take in crossing?—She averages from eight to 15 minutes; sometimes 20, if it is blowing very hard.

1305. From eight to 15 minutes in fair weather?—Yes, that is the average passage.

1306. They can cross in eight minutes?—Yes, that is from shore to shore, not including landing.

1307. What is the size of your steamer?—We have two steamers; one is 68 feet long, 15 feet beam, and 7½ feet deep.

1308. What is the tonnage of the steamer?—About 16 tons; if a sailing vessel, she would measure about 70 tons.

1309. What is the power of the iron boat?—Thirty horses the iron boat; 24 horses the wooden boat.

1310. Do you consider the power of the iron boat sufficient?—Yes, I think it is; we have never found her miss her passage yet.

1311. How many passages do you make in the day?—Occasionally more than 20; we could make more if we had work constantly; if we were going during the 12 hours I have no doubt we might make 18 or 20 passages from each side.

1312. Is there any state of the tide when the steamer cannot cross?—There are states of the tide when they cannot land.

1313. There are no states of the tide when they cannot cross?—No, not the iron boat.

1314. How much water does the iron boat draw?—Rather more than three feet; three feet four, or three feet five.

1315. What is the reason they cannot land?—For want of a proper pier.

1316. Then you cannot cross in the steamer at all times of the tide, in consequence of not being able to land?—Just so.

1317. How is the ferry crossed when steamers are unable to land?—In a sailing or row-boat.

1318. Could you cross at any state of the tide in the steam-boat if you had proper landing-places?—We could, without difficulty.

1319. Is

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1319. Is any delay occasioned to the mail in consequence of your not being able to cross in the steam-boat at all times of the tide?—There is a delay, because the sailing-boat or row-boat does not do it in the same time the steamers would.

1320. Then there is a delay to the mail in consequence of not being able to use the steamers?—Yes.

1321. Is not very great inconvenience felt by the passengers travelling by the mail, when they are obliged to cross in a small boat?—Yes, there is a great deal of dissatisfaction.

1322. Very great?—Yes.

1323. The coach has to be unloaded on one side, and the mail with the passengers and luggage to be put on board a small boat, and then they are landed on the opposite side, and the coach has again to be reloaded?—Yes.

1324. And the passengers and luggage, in wet weather, are exposed in that small boat to the rain and to the spray, and very great inconvenience is felt?—Very great at those times, when they cannot land in the steamers.

1325. Would not this delay and inconvenience be altogether obviated, if you were able to cross the ferry at all times and states of the tide in a steam-boat?—It would.

1326. And the passage would be made with much greater regularity and certainty?—It would.

1327. With proper piers, how many trips could you make in a day with your steamers?—At neap tides they could make 16 or 18 from each side; that is, by constantly going, and returning as soon as they had landed, without any delay on either side.

1328. With proper piers and landing-places you could start at regular hours from each side?—Yes.

1329. Are the two steamers you have now constantly plying?—No, only one at a time; one is rather an inefficient boat.

1330. If you had two efficient steamers, could you keep them both constantly at work?—We could.

1331. And you would make the passage regularly every half hour?—Yes, from each shore, and at all times of the tide.

1332. Would the neighbourhood and the counties adjoining derive great convenience from a regular communication every half hour across the Old Passage ferry?—Yes.

1333. Great convenience would be derived by the counties on each side of the Bristol Channel, if there were a regular and certain communication?—Certainly.

1334. At spring tides what is the rate of the current with which you have to contend?—From three to four knots dead against us, and the cross tide six or seven knots; it is not more than three or four knots dead against us.

1335. Under those circumstances, what would be the longest time the passage would require?—I think it would never exceed 20 minutes, unless it was a perfect hurricane.

1336. Do you know anything of the scheme that was proposed for a steam-bridge to cross with a chain?—I remember a survey that was made with a view to it.

1337. Would any advantage, in your opinion, be derived from that?—I think not; I think the delay would be greater.

1338. You say the average passage is from eight to 15 minutes, and under the most unfavourable circumstances, 20 minutes?—Yes.

1339. Mr. *Vivian.*] Do you remember a survey of the passage being made by Mr. Rendel, with a view to the construction of a floating bridge?—I do; I remember the time he made it.

1340. Did you see his report?—I did not; I think he reported favourably.

1341. Mr. *Morgan.*] Has the passage been at any time impracticable in consequence of the weather, so that the mail has been delayed the whole day?—No; it was delayed some time ago, one night when it came in the dark in a gale of wind; I think three or four years ago.

1342. What was the cause of the mail arriving so late?—It came up at a late hour at that time. It was in the winter time, when it was blowing a heavy gale from the eastward.

1343. If there were proper piers and lights at night could it happen again?—No, I think not.

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1344. What piers have you now?—We have four.

1345. What is the length of your piers?—The high water pier is 156 feet; the low water pier 581.

1346. What is the width?—They are about 30 feet wide, and one from six to seven feet high; three of them are not quite so much.

1347. Do they extend down in one continuous line to the water?—Two out of the three do on the Aust side; the one on the cliff does not; that is nearly half a mile distant.

1348. At what state of the tide can steam-boats land there now?—They can land at all states of the tide, except from high water until about an hour and a half afterwards in spring tides, and at low water until about five hours' ebb, and an hour's flood.

1349. At what state of the tide can you not land in steam-boats?—After high water spring tides, for about an hour and a half they cannot land. In neap tides they can land the whole of the day in moderate weather; our piers are sufficient for that, and at low water we have a delay of nearly three hours for want of landing-places.

1350. Can as many passages a day be made with the wooden boat as with the iron one?—Not with our present boat.

1351. Is there any state of tide or wind, supposing the piers were complete, when you could not cross with the wooden boat, and could with the iron one?—Yes.

1352. What state of tide is that?—If the wind and tide were the same way the wooden boat could do nothing.

1353. You could not cross with the wooden boat?—No, there is such a strong tide.

1354. The iron boat is the most perfect and effective?—She is.

1355. You consider iron boats the best adapted to the ferry?—Yes.

1356. Why do you consider that?—Because there is less draught of water.

1357. If you had another steam-boat to order, could you suggest improvements in her construction?—I could.

1358. What improvements would you suggest?—I would not make her so deep; she is too high out of the water; she holds too much wind.

1359. In this iron boat do you take carriages and horses?—We do.

1360. Suppose the mail were to come down as it does now, would it be necessary to unload and load the mail-coach at the Passage, as is now the case; or could the coach be put at once on board the steamer?—Yes; we do it now.

1361. On board the iron boat?—On board either.

1362. The mail-coach which leaves Bristol is carried across with its luggage unloaded, and is taken out on the opposite side?—It is.

1363. Is much time saved by that?—I should say at least a quarter of an hour.

1364. And the conveyance of the passengers and the safety of the luggage is much increased thereby?—It is.

1365. Have you had any estimate given to you of what would be the cost of an iron steam-boat, such as you have described?—Yes.

1366. What would it be?—About 2,200 *l.*

1367. You have one already which is quite effective?—Yes.

1368. Although an improvement might be made in a new one?—Yes.

1369. Which would adapt it better to that station?—Yes.

1370. With such a boat, could you increase the number of trips, supposing the improvements were made to the piers?—We could.

1371. You have stated the average time of the steam-packet trips to be from eight to 15 minutes; what would be the length of the trips, supposing the ferry to be rendered as perfect as you speak of?—From eight to 12 minutes.

1372. And they would be more regular?—Yes.

1373. What do you consider is that state of things whereby the greatest perfection would be attained for the ferry as a steam-boat establishment?—Good piers, and good steamers at work.

1374. What is the average length of time during the 12 hours that the steamers cannot ply, owing to the defects in the present piers and approaches?—In spring tides, from four hours to 4½ hours every 12 hours.

1375. If these defects were removed, might all the sailing boats now necessarily employed be dispensed with?—They might.

1376. How would the ferry then be worked?—By the two steamers.

1377. Would

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1377. Would the expenses be increased or lessened by having two steamers constantly worked?—I think they would be increased by the consumption of fuel.

1378. Would there be as many hands employed?—Not so many as boatmen; there would be an additional engineer and fireman. There might be two or three hands less.

1379. Then, with those two or three hands less, would the increased consumption of fuel increase the expense?—Yes.

1380. Is there not a good deal of the men's time now quite lost, owing to the imperfections in the establishment?—Yes.

1381. Would that be the case if the ferry were exclusively a steam-packet ferry?—It would not.

1382. Would the economy of time and the saving of boats' crews' wages compensate for the increased expense of a second steamer?—I think not.

1383. Can you contemplate any state of circumstances, of tides, winds, and so on, which would cause delay to Her Majesty's mails, supposing the improvement you mention in the piers and packets were made?—I cannot, unless it were a complete hurricane, or something of that sort.

1384. If the steamers plied regularly and the accommodation was better, would there not be an increased communication across?—I think there would, at least 40 or 50 per cent.

1385. Do you think the reduction of the men's wages and the increased communication would pay the expense of a new and efficient steam-packet?—I do, considerably more.

1386. Supposing these improvements were made, how would it be then with regard to night-crossing?—With lights they could cross, in moderate weather, at any time of the night.

1387. With powerful lights on each pier and the weather moderate, could the mails be crossed at all times of the night, winter and summer?—Yes; we have crossed the Hereford mail at half-past seven in the evening, in winter and summer, for the last two or three years; that is, in the sailing boat.

1388. Would extra hands be required to do such extra duty in the winter time?—I think not.

1389. The same number of hands that you employ in the summer would do the duty in the winter?—Yes, taking it alternately.

1390. Do you know the circumstances under which the ferry is held by the present proprietors?—They hold it under a lease, of which there are about 80 years unexpired.

1391. Has any sum of money been laid out by them on the present piers?—There has been, from first to last, nearly 20,000 *l.* laid out.

1392. What does the establishment now consist of?—There are two steamers, a horse-boat, and four other sailing boats.

1393. And how many men?—Fourteen men besides myself.

1394. Taking the average of the last five years, what have been the annual receipts?—£. 3,190.

1395. In the like period what has been the annual expenditure?—£. 3,213.

1396. Then there has been a loss upon it?—Yes, there has.

1397. Do you think the increased communication across, in consequence of the improvement you have spoken of, would make up that difference, so that the ferry should pay itself?—I do; considerably more.

1398. Do you believe that, in consequence of the bad state of the piers, and the insufficiency of the packets, a great number of people object to cross?—I do; I know it perfectly well.

1399. What number of mails and stage-coaches now cross daily?—We have four mails and five other coaches, and we have an extra coach on in the summer months.

1400. Now, suppose the Irish letters, instead of crossing as they do now at Passage, were to go by steamers direct to Bristol, or from Brean Down, must the same mails which now cross still be kept on for the circulation of letters in that part of the country?—Yes.

1401. Can you state the number of passengers which have crossed in the last five years?—I have a statement of the traffic, which I will hand in.

[*The same was handed in, and read, as follows:*]

PARTICULARS of Traffic at the *Old Passage Ferry*, for Five Years ending 24th June 1841.

Years ending June	Number of Horses.	Cattle.	Pigs and Sheep.	Passengers.		Carriages.		—		
				1st Class.	2d Class.	Carriages.	Gigs, &c.	£.	s.	d.
1837 - -	4,202	1,419	13,576	27,746	6,017	388	1,600	2,785	7	3
1838 - -	4,682	933	10,709	26,754	5,557	327	1,652	2,726	3	10
1839 - -	5,370	1,641	24,322	28,788	7,453	329	1,754	3,090	2	8
1840 - -	4,675	3,982	19,681	25,856	5,757	304	1,509	2,796	13	11
1841 - -	4,381	1,716	21,195	29,155	6,250	272	1,560	2,838	3	11

Rents of inns and cottages, 365 *l.* per annum, not included in the above.

1402. Have you a table of your tolls also ?—I have.

1403. Have you also a table of the expense attending the passage ?—I have.

1404. Mr. *Vivian.*] Who are the present proprietors of the ferry ?—The Duke of Beaufort, Mr. Jenkins, and Mrs. Rooke.

1405. Is it their joint property ?—The Duke of Beaufort has one-half of the shares, and the other two parties one-tenth each.

1406. To whom does the ferry itself belong ?—To Mr. Jenkins, of Chepstow, one of the present proprietors.

1407. Who are the lessees ?—The Duke of Beaufort, Mr. Robert Jenkins, and Mrs. Rooke.

1408. Have the proprietors a contract with the Post-office for the conveyance of the mails ?—They have.

1409. What sum is allowed by the Post-office for the conveyance of the mails across the ferry ?—£. 150 a year.

1410. And for that you have to convey the four mails in the course of the day ?—Yes.

1411. Do you know at all the cost of the establishment at the New Passage, before the mails were removed ?—I think it was something like 300 *l.* a year; that was only for two mails.

1412. Mr. *Morgan.*] I believe there are two inns at the Passage, and 70 acres of land ?—Yes.

1413. And the produce arising from the ferry ?—Yes.

1414. *Chairman.*] Are you of opinion that, if proper places of landing were made, it would repay the outlay of making the piers ?—I am satisfied it would.

1415. Mr. *Vivian.*] Supposing the allowance of the Post-office were increased, would it enable the proprietors to effect a loan, so as to make the necessary improvements ?—I cannot answer that question.

1416. Mr. *Morgan.*] Can you state for what sum the interest of the present proprietors could be purchased ?—I cannot.

1417. Have you any idea for what sum the ferry could be put in a proper condition ?—I believe from 8,000 *l.* to 10,000 *l.*, to establish sufficient piers and steamers.

1418. Mr. *Miles.*] To go at all times of the day, in all states of the weather and of the tide ?—Yes.

1419. Do you not consider this ferry very dangerous ?—No.

1420. Not in any way ?—No.

1421. You would not hesitate to cross in a thick fog ?—Not in day-light.

1422. You would at night ?—Perhaps I should at low water.

1423. How strong is the tide ?—Six or seven knots in spring, and three or four in neap-tides.

1424. Have you never been carried out of your course ?—No, not a quarter of a mile at all events.

1425. Do not people very much object to crossing the Passage ?—Some do; they do not object in a steamer.

1426. Is there not a strong impression against crossing ?—Not in a steamer.

1427. Do you not think it puts people to great inconvenience ?—Not in a steamer; they object to the sailing boats.

1428. With

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1428. With your improvements, would you propose to drive carriages on board the steamer?—Yes.

1429. Without people getting out and in?—With our present pier people do not get out of their carriages unless they choose, except in rough weather.

1430. Mr. *Vivian.*] In your opinion are passengers deterred from going to Milford by the mail, in consequence of being subjected to the inconvenience of crossing the Passage occasionally in an open boat?—Yes.

1431. Is it not provided, in your contract with the Post-office, that the mail shall be conveyed in a steamer at all times when it is practicable?—Yes.

1432. Has that been done?—It has.

1433. I find by a return furnished by the Post-office, that in the year 1841 the down-mail had the steamer 288 times in crossing, and 74 times in an open boat, and the up-mail only 205 times the steamer, and 157 times the open boat; what occasioned the difference?—It must have been in blowing weather; at times we cannot land with our present steamer, and at low water we cannot land our passengers at all.

1434. Then in bad weather, when the steamer is most required, it cannot be used?—No, not in very bad weather; at times we can land the mail, but we cannot land our passengers.

1435. Then, at such time, the passengers are exposed to the inclemency of the weather in an open boat, and are obliged to go on with their wet clothes by the mail?—Yes.

1436. And from a deficiency of steamers and of additional landing-places, travellers are in an uncertainty whether they can embark their carriages or not?—They are.

1437. Assuming these improvements were made at the ferry, should you be able to cross at all times of the tide in a steamer?—Yes.

1438. And passengers would not require any table to be published of the times when they might cross?—No.

1439. Mr. *Morgan.*] Do you believe it would be the great line of communication from the counties on the Welsh side to Bristol, for persons travelling to London?—I think it would.

1440. It would be the great line of communication to the Great Western Railway?—It would; of course the steamers would interfere with us in fine weather.

1441. But for travelling carriages?—Yes, for carriages I think it certainly would.

1442. The mail used to be crossed at what was termed the New Passage, lower down the river?—Yes.

1443. Mr. *Vivian.*] What was the reason of removing it to the Old Passage?—Because we had better accommodation and a steamer.

1444. What is the difference of distance going by the New or the Old Passages from Bristol to Milford?—I think it is five or six miles by land, and we have a mile and a half less water.

1445. Has accommodation been furnished to the Post-office to the full extent of your means?—Yes.

1446. Is not the ferry capable of improvement?—Decidedly.

1447. And if the Post-office were to increase the allowance, would it be improved?—Yes, but I cannot say whether the present proprietors would do it, unless the increase was great, for they have never yet had a shilling for the money they have laid out.

1448. In fact the present allowance by the Post-office is too low, being only about 8s. a day, for which you have to cross four mails?—Yes.

1449. That amounts to about 2s. a boat?—Yes.

1450. You have stated that the time occupied in crossing the Passage is usually a quarter of an hour; I find by the return which has been furnished by the Post-office, that the average of the time occupied from the arrival of the mail on one side, to its departure from the opposite side, is nearly 40 minutes?—Yes, I have known them frequently half an hour loading the coach. When I said the average was from eight to 15 minutes, I meant from shore to shore, not including landing.

1451. Mr. *Miles.*] You have stated times for the boats crossing every day?—Not stated hours, because the tide varies every day.

1452. How is it arranged then?—According to the tide, we go to the pier we

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can land at; there are certain states of the tide in which we have no pier to land at.

1453. If parties come to the ferry, would the steamer take them across at any time if she be able to go?—Yes.

1454. At any time they came?—Yes, unless a mail is due.

1455. They are never stopped in any other case?—No.

1456. Are not people frequently detained at the Passage sometimes six or seven hours?—Never except in very bad weather.

Mr. *Edmund Scott Barber*, called in; and Examined.

Mr. *E. Scott Barber.*

1457. Mr. *Morgan.*] YOU are a Civil Engineer, residing at Newport?—I am.

1458. Are you acquainted with the Old Passage ferry?—Yes.

1459. Have you been employed to survey it?—I have.

1460. How long have you known it?—I have known it six or seven years. I was called in to survey it two or three years ago.

1461. By whom were you called in to survey it?—By the Duke of Beaufort's agent, and Mr. Jenkins, of Beachley.

1462. Will you state to the Committee what are the opinions you have generally formed of its merits as a ferry?—Looking to the country round it, I should say the Old Passage is the best point for crossing; it is only half the distance of the New Passage: there are no cross currents there as at the New Passage, and there is a more rapid flow of the tide up and down at the New than there is at the Old Passage.

1463. Are there any rocks at the New Passage which are dangerous?—There are rocks; I should say they are very dangerous.

1464. Then is it your opinion that the Old Passage is far preferable to the New, for the convenience of crossing?—It is.

1465. Are you aware what the present establishment at the Old Passage consists of?—Yes, I have heard Mr. Williams's statement.

1466. What do you consider to be the defects of the present establishment?—The want of piers at low-water spring tides; a pier is required to connect the high-water and low-water piers. There is a very objectionable half mile of road along under the cliff, which would be dispensed with by the improvement of the piers; and the want of another steam-boat is one of the defects of the Passage.

1467. Those are the improvements and alterations which you would propose?—They are.

1468. How would you complete the piers which are there at present, taking the Aust side first of all?—On the Aust side, I should connect the extreme high-water pier with the low-water pier by an open timber pier, on account of the accumulation of mud. I should raise the low-water pier four feet, and extend it to low-water spring tides, that is, to three feet of water, so that a steam-boat could always come alongside; and on the Beachley side, I should raise a portion of the pier, so as to render the inclination uniform (it is not so at present), and extend it to three feet of water, so that a steam-boat could come alongside of both piers.

1469. Mr. *Vivian.*] Would it be safe to cross at night if those improvements were made?—I cannot say; that is rather a nautical question.

1470. Mr. *Morgan.*] Steam-boats would be able at all times of the tides to come alongside both piers?—Yes.

1471. And the passage could be made at all times of the tide?—Yes.

1472. Would the timber pier you speak of be likely to last, or would it be carried away by the strength of the tide?—Not in that part of the river; if it were on the Beachley side it might. I do not think a timber pier would stand there so well as on the other side.

1473. You would not propose to put a timber pier there?—I should not; there is no accumulation of mud there. I should put a timber pier on the outside, on account of the tide carrying away the mud.

1474. Would the ferry then be made as perfect of its kind as it is capable of being made?—I think it would.

1475. Do you consider that any of the modern expedients, such as steam bridges, flying bridges, and so on, would be applicable to the Old Passage Ferry?—I do not think they would answer at the Old Passage. The tide-way is so

very

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very rapid, and the sea is so very rough there at times, that there would not be buoyancy enough in the boat; she would not rise with the sea, and the passengers would be drenched.

1476. Mr. *Vivian.*] Are you aware that Mr. Rendel, who constructed the floating bridge at Torpoint, surveyed the Old Passage?—I have heard so.

1477. By the direction of the Postmaster General?—I am not aware by whose direction; I have heard Mr. Wyatt mention it.

1478. Have you seen Mr. Rendel's report?—Yes, I have it with me.

1479. He reported favourably of it, I believe?—Yes, he did.

1480. Mr. *Miles.*] What is the fall of the tide at the Aust passage?—Nearly 50 feet, the extreme.

1481. How would you propose to make your piers to meet that?—They are sloping piers, slips

1482. Steam-boats would be able to come up to those piers with 50 feet fall of water at all times of the tide?—Yes, the pier runs down from the bank.

1483. Then you would get your steamers alongside at high-water mark?—The steamers can come now at high-water mark; it is at low-water mark they cannot come alongside for want of a pier.

1484. Mr. *Morgan.*] If a pier, such as you describe, were constructed, would carriages, the mail-coach for instance, be able to drive down, and be put at once on board the steam-boat?—Yes; they would run down and be put on board at once, without shifting the luggage.

1485. Are you acquainted with the present iron steam-boat there?—I have frequently crossed in her.

1486. Do you think it would require a second steam-boat of that kind to make the passage perfect?—I think a second steam-boat is required, so that there should be no detention.

1487. Have you seen the ferry under very unfavourable as well as favourable circumstances?—I have seen it in rough weather as well as in fair weather.

1488. Do you think a pier, such as you have mentioned, would stand the weather, and that steam-boats could come in unfavourable weather alongside?—I think so.

1489. Do you consider that there are any states of tide or wind when it would be impossible or dangerous to make trips, supposing the ferry were made complete as a steam-packet ferry; that is, with piers completed and steam-boats efficient?—I think with those improvements, if two efficient steam-boats were there, they would always make the passage with certainty in any state of wind or tide.

1490. Mr. *Vivian.*] And that they would be able to make the passage, so that one steamer could start every half-hour from each side?—Yes.

1491. Do you think the present allowance made by the Post-office for the conveyance of the mails across the Passage is an adequate allowance for the conveyance of four mails in the course of the day?—It is a very small one, I should think.

1492. Have you made an estimate of what it would cost to construct the piers and make the Passage quite complete?—I have; it is as follows:

ESTIMATE for Building PIERS at the Old Passage Ferry, placing another Steam-boat on the Station, and rendering the Ferry complete, so that a Steamer may make the Passage at any state of Tide.

	£.	s.	d.
New iron steam-boat - - - - - - - - -	2,500	–	–
An open timber pier to connect the high and low-water piers (564 feet)	1,358	–	–
To raise low-water pier 4 feet, and widen upper portion to the same width as the lower part - - - - - - - -	935	–	–
To lengthen low-water pier, so that a steamer can come alongside at low water, spring tides (timber, 387 feet) - - - - -	1,620	–	–
Excavators, &c. (Aust) - - - - - - - - -	530	–	–
Beachley:—Lengthening pier and raising present pier, so as to form an uniform inclination, 240 feet - - - - - - -	1,050	–	–
Excavators, &c. - - - - - - - - -	300	–	–
	8,293	–	–
Contingencies 10 per cent. - - - - - - - -	830	–	–
£.	9,123	–	–

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Length of Piers :

Aust :—High-water pier	156	feet.
Mud	564	–
Low-water pier	581	–
New pier	75	–
To 3 feet water	387	–
Beachley :—Pier	480	–
To 3 feet water	240	–

1493. Do you think that 10,000 *l.* would complete the piers and furnish another steam-boat, such as would make the ferry quite perfect ?—Yes.

1494. And allow a margin for contingencies ?—Yes, I have put down 10 per cent. for contingencies.

1495. Do you think the improvement of the Old Passage Ferry would be a very great convenience to the inhabitants of Monmouthshire, Breconshire, Glamorganshire, Herefordshire, Gloucestershire, and in short all the counties on the Welsh side of the Channel ?—I do.

1496. You reside at Newport ?—I do.

1497. Is there not very great communication and correspondence between the mineral districts of South Wales and the South of Ireland ?—There is a great deal of correspondence and a great deal of trade done between Newport, Swansea, Cardiff, and the South of Ireland.

1498. Can you give any opinion as to whether it would be desirable that the present course of communication should be diverted, and the correspondence from Wales to Ireland sent round by Bristol ?—I think it is desirable that the English letters should pass through Bristol.

1499. Do you think it desirable, for the interests of the mineral districts of South Wales, that the correspondence from Ireland should go to Bristol, and then cross by steamer to Cardiff; or do you think the present transmission of Irish letters through South Wales from Milford, is the most convenient ?—I think the present channel of communication is the most convenient for South Wales.

1500. Mr. *Vivian.*] Do you not think it would be a serious inconvenience to the mineral districts of South Wales if the packet establishment at Milford were suppressed ?—I think it would be a very considerable inconvenience.

1501. As regards the communication between Ireland and South Wales ?—Yes; they would lose a day by it.

1502. A day each way ?—Yes; we should have to go back to Bristol to send letters to Ireland.

1503. *Chairman.*] In the event of a steamer being established at Newport or Cardiff to carry letters for Ireland to the packet at Portishead or Brean Down, should you suffer any inconvenience at Newport ?—A packet from Newport could not go at all states of the tide.

1504. Not at present; but would there be any difficulty in making a pier or landing-place there ?—There would not be any difficulty, but the expense; the expense would be considerable.

1505. Would it not be a great public convenience if there were a landing-place at Newport or Cardiff, so that steamers could land at all times ?—No doubt it would be a convenience.

1506. Mr. *Miles.*] Would it be easier to make a pier at Cardiff than at Newport ?—No, I think not; there is a mile of mud at Cardiff.

1507. It would be made at Penarth ?—You have deep water there.

1508. *Chairman.*] If the improvements you talk of were made at the Old Passage, do you think the increase of traffic would repay the outlay ?—I think the public would pass there in greatly increased numbers. They have a great objection to the open boats at present, especially ladies; they will not cross there if they can help it.

1509. Do you think they would get five per cent. for the outlay ?—I think the increased number of passengers would repay the outlay after the first year or so, after it became well established.

1510. Are you aware of any intention of the present proprietors to improve the Passage in that way ?—They have spoken to me on the subject of improving the Passage; I do not know what their intentions are at present.

1511. Mr.

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1511. Mr. *Reade.*] Have you ever furnished any plan of the new pier?—Yes, I have.

1512. How long ago was that?—Two years ago; Mr. Wyatt instructed me to report upon the improvement of the ferry.

1513. Have the proprietors acted on those plans?—They have not.

1514. Do you know why they did not act on those plans; did they complain of their being too expensive?—I suppose it was the funds necessary to carry them into execution.

1515. What was your estimate?—£. 9,123; 10,000 *l.* in round numbers.

1516. Mr. *Morgan.*] Do you think if there were to be a communication from South Wales to Bristol at all times of the tide, it could be more easily made from Newport than from Cardiff?—I think it could; a Newport boat can make the passage, when a Cardiff frequently cannot.

1517. Are you acquainted with Brean Down?—I know the country generally.

1518. You cannot say whether it would be an easy communication from Brean Down to Cardiff?—No, I know it has been complained of. The Taffe Vale Railroad with which I was connected talked of effecting a line from Cardiff to Uphill.

1519. Mr. *Vivian.*] Would Brean Down be a better place for the establishment of a packet station than Uphill?—I am not aware.

1520. Uphill is farther up the river?—Yes.

1521. Mr. *Morgan.*] In crossing the Old Passage at low water, there is no danger of coming in contact with rocks; it is a passage that may be made without danger of that?—With the present boatmen who are well acquainted with it.

1522. Mr. *Vivian.*] I think you were employed by Mr. Brunel to survey the line of country from Gloucester to Swansea, with a view to a railway through that district?—I was.

1523. What is your opinion of the country; is it well adapted for a railway?—From Gloucester to Swansea, it is a very good line; I think the country westward of Swansea is very difficult.

1524. Did you survey the line?—Yes, trial levels were taken, but no line was definitively determined upon.

1525. You have stated that the country eastward of Swansea is better adapted for a railway than to the westward of that place?—Yes.

1526. Are there between Gloucester and Swansea any practical difficulties?—No.

1527. Does the line pass through the important mineral districts?—Yes.

1528. Can you state generally the line it would take?—I can point it out upon the Ordnance map. The line is first from Gloucester to Nuneham; from Nuneham to Chepstow, tunnelling under Mead House, crossing the Wye a little below Chepstow-bridge; following the river to Portskenrick, then taking the sideling ground, so as to be above flood-mark above Caldicot Level; crossing Fairoak Common; crossing the Usk just above Newport-bridge; tunnelling Caerran; passing south of Tredegar-park; skirting Wentlong Level, and on to Cardiff, where it would form a junction with the Taffe Vale Railway. It would then take the vale of Ely by St. Fagan's, Peterstown, up to the summit of Llanaacon, from which point there are three different lines. The lowest summit is by Coity, and the highest summit at Stormy. It would then pass on a little to the north of Taibach, above Aberabon, to Briton Ferry, where there would be a sea wall, and from thence to Neath, and on to Swansea.

1529. What is the distance?—One hundred and three miles.

1530. Mr. *Miles.*] Is there any chance of that being adopted?—I know of none at present. I surveyed it for Mr. Brunel; it was to be called the South Wales Railway.

1531. What do you consider would be the cost of making that railway?—I think 15,000 *l.* per mile.

1532. Then you think it would be cheaper than many of the railways in England?—Yes; we can make railways in our country much cheaper than in England.

1533. What did the Taffe Vale Railway cost?—That cost a great deal more money.

1534. Mr. *Vivian.*] Are you acquainted with the Mumbles?—Yes; I have frequently been at the Mumbles.

1535. Is there good anchorage ground there for vessels five miles beyond Swansea?—Yes.

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1536. Is there a good line of road from Swansea to the Mumbles?—There is.

1537. Do you think a floating pier could be constructed at the Mumbles, so as to afford protection to steamers or other vessels under any circumstances?—There is a very good roadstead there now; there is very good protection under the Mumbles Head.

1537*. Could a pier be carried out into deep water?—I should think so.

1538. So as to make a harbour of refuge in all states of the tide?—Yes; I know that has been talked of, and thought practicable by many persons.

1539. Mr. *Miles*.] Do you think so yourself?—I do.

1540. *Chairman*.] Would it be a convenient place for steamers to call at, if improved in the way you propose?—I cannot say whether they could always touch there; that is more of a nautical question; there is deep water a very little way from the Mumbles, in all states of the tide.

1541. Lord *Emblyn*.] Swansea is a dry harbour at low water, is it not?—It is, quite so.

1542. Mr. *Vivian*.] The line of road that you have surveyed for a railway would pass through mineral districts the whole way?—Yes.

1543. And of course it would be advantageous to the proprietors of land?—Yes.

1544. And it would be to their interest to afford facilities for the making of that railway?—I think it would be a public benefit, certainly.

Mr. *Thomas Parsons*, called in; and Examined.

Mr. T. Parsons.

1545. Mr. *Vivian*.] SUPPOSING the packets were removed from Milford, how would you forward the correspondence from Waterford and the South of Ireland to Swansea and Newport, and along that line of road?—By Brean Down, and then having a packet across to Cardiff. But I beg leave to say I suggested that the packets should call at Dale Bay, and that the mail should continue through Wales, as at present.

1546. Do you consider that any saving of time would be effected by that arrangement?—A great saving of time would be effected to the South of England.

1547. In that case the mail from Milford must be forwarded by land, in the same way as at present; then supposing the packets arrived at Milford earlier than at present, still the mail through South Wales would not arrive sooner at Bristol, because it would require the same time to forward it by land?—The Bristol letters, and all to the South of England, would come by Brean Down, and all the Welsh letters and those by Gloucester and so on, by Milford. For the accommodation of the Welsh letters and those by Gloucester, they would go down by Dale or Milford, the packet calling there.

1548. Supposing a packet station were established at Brean Down, and it was arranged that the packets were to call at Milford for the Welsh letters, the packets perhaps, in four times out of five, would arrive at Milford before the mail, which would have to go down through Wales; but as they would have to wait at Milford for the arrival of the mail, no time would be saved in the delivery at Waterford?—It would be arranged by the Post-office so that they should arrive in time, giving a margin of an hour and a half or a couple of hours, so as to be in Milford before the packet could get in.

1549. Then it would require two mails to be running through South Wales, as the London letters are now conveyed by the same mail that brings down the Irish letters from Bristol?—That is a difficulty as regards the London letters for Wales; what I was looking to, was bringing the Welsh correspondence to Ireland, not to bringing the correspondence from London and other parts to Wales.

1550. Then it is clear that by the arrangement you propose it would require two mails to run through South Wales; one with the Irish letters, three or four hours earlier than the mail which would bring down the London letters, as otherwise the packet would have to wait for the arrival of the mail, and no time would be saved in the despatch of the letters to Ireland?—I see there is a difficulty in that, unless the Post-office could strike out some plan by which the mails could fit in so as to accommodate both.

1551. And there would be the same difficulty as to the mail from the South of Ireland to Wales, because you must allow the same time for the mail to travel?—Yes.

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1552. Supposing the packets from Brean Down were to call at Milford, it might happen four times out of five that it would be there before the arrival of the mail; and the fifth time it might happen that the mail was there before the packet. In that case there would be a delay of the Irish mail, as it would have to wait the arrival of the packet?—Yes, but the great thing would be always to have the mail ready an hour or two before the packet is to get in, so that in the event of her arriving before the regular time, it might be put on board at once, that there might be no delay.

1553. Mr. *Morgan.*] What would you propose to do with regard to passengers at Dale Bay; how are passengers to get on board?—Passengers would remain there until the packet came in.

1554. How would you embark passengers?—From Hobb's Point, on board a small steamer, or they might go to Dale by the road.

1555. How would you embark them on board the steamer at sea?—They need not go to sea; they might embark from the pier.

1556. Could horses and carriages embark?—It very seldom happens that there are carriages going, but of course proper arrangements would be made for putting them on board the packets.

1557. Does not that happen because there is no accommodation?—There is accommodation for carriages at Hobb's Point.

1558. Mr. *Vivian.*] By the return which has been furnished by the Post-office of the time occupied in sending a letter from Swansea to Waterford by Hobb's Point, it appears it would require 19 hours 40 minutes, and by Holyhead 72 hours 52 minutes?—The letter going by Holyhead arrives in Dublin in the morning, and remains in the Dublin office until nine at night.

1559. Do you not think it would be a very serious inconvenience to the trade between South Wales and Ireland, if all the letters between those two countries were sent round by Holyhead?—Certainly.

1560. Is there not a great intercourse between South Wales and the South of Ireland?—Very great to Swansea, Cardiff, Newport, and Merthyr Tydvil; but accommodation would be afforded to all those towns by having a steamer across from Cardiff to Brean Down.

1561. But the arrangement you propose would entail the construction of a new harbour at Brean Down, a new harbour at the mouth of the Cardiff river, a new harbour at Dale, a new road to Dale Point, and a new set of packets of great power between those different points?—It would certainly.

1562. All that would of course require a very considerable outlay?—Yes.

1563. *Chairman.*] Do you conceive the present establishment at Milford is tenable without a proper description of packets?—I think the present boats are not at all efficient for such a place.

1564. Mr. *Reade.*] Is the present establishment at all equal to the work?—No, except for South Wales.

1565. Mr. *Vivian.*] Is anything required on that station to render it complete except more efficient boats?—Yes; I think the best boats that could be put on would not make it so convenient for the South of England letters as packets coming from Brean Down.

1566. Is Hobb's Point as complete a packet station as can be made?—It is very complete.

1567. Then what it requires is more efficient packets?—Yes, but it would not be equal to Brean Down.

1568. Does not the mail travel through South Wales at the rate of 9½ to 10 miles an hour?—I have been told so.

1569. The distance from Bristol to Hobb's Point is 150 miles, which they do in less than 17 hours?—I believe the distance is about 147 or 150 miles.

1570. Mr. *Grogan.*] Do many letters pass through Waterford from the South of Ireland, for Devonshire, Somersetshire, and Cornwall?—Yes, a considerable number.

1571. Are they more numerous than the letters to South Wales?—I cannot exactly say.

1572. Do you think it would be more convenient to the South and West of England to have a direct Post-office communication than to go through South Wales?—I think it would.

1573. Have they not the option, in the South of England, of going by Dublin or by Waterford?—It may be said that all the letters from the South of England

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for the South of Ireland go round by Dublin. Bristol letters for Waterford go by Hobb's Point.

1574. Mr. *Vivian.*] By a return which has been furnished by the Post-office, it appears that letters sent from Bristol to Waterford by Hobb's Point would require 30 hours, and those from Bristol to Waterford, by Holyhead, require 65 hours 53 minutes?—The letters from Bristol for Waterford are invariably sent by Hobb's Point, except a few that may chance go by Dublin.

1575. Mr. *Grogan.*] It appears by that return, that letters from Bristol to Waterford, by Holyhead, are 65 hours 53 minutes *en route*; from your knowledge of the post in Ireland, have you any doubt that 24 of those hours are allowed for the detention of those letters in Dublin?—If the packet from Holyhead arrives in due course, those letters get in to Dublin at half-past eight o'clock in the morning, and remain until nine o'clock at night, when they are forwarded by the mail.

1576. The same remark applies to letters by Liverpool, which are 56 hours?—They, I suppose, get in to Dublin in the morning, and remain all day, until nine at night.

1577. Of course, if the arrangements on the Irish side of the Channel from Dublin to Waterford is such, that the letters would be forwarded in due course, there would be 12 or 15 hours saved out of that?—Yes, except as I remarked yesterday, if the letters were sent off from Dublin in the morning they would come in to Waterford at a late hour.

1578. Mr. *Reade.*] You stated in your examination yesterday that the passage by sea would, in your opinion, be more certain than by land?—Yes; that referred to South Wales, and to the particular time of which I was speaking. I kept an account at that time of the number of times the mail was delayed in consequence of the snow; and I stated that, I think, to the commissioners who came over to Ireland to inquire into the Post-office arrangements.

1579. Mr. *Morgan.*] How often has the mail through South Wales been delayed by the snow in the last year?—I do not think it has been delayed so much for the last five or six years as it was formerly.

1580. Mr. *Vivian.*] How often, within your knowledge, has the mail been delayed by snow?—I cannot say; I have not paid attention to the matter for the last few years. Some years ago, it used to be delayed in that way. It is five or six years ago that I speak of.

1581. Do you think it occurred once or twice during any winter?—Yes, much oftener than that by snow and frost.

1582. Is it not likely that that sort of detention would happen more frequently on the North Wales road?—Yes; but I have not made any inquiries into the subject on that line of road.

Lunæ, 2° *die Maii*, 1842.

MEMBERS PRESENT.

Captain Berkeley.
Mr. Corry.
Lord Emlyn.
Sir Robert Ferguson.
Lord Ingestre.
Mr. W. Johnson.
Mr. Miles.

Mr. O. Morgan.
Mr. Murphy.
Sir Denham Norreys.
Mr. Reade.
Mr. Shaw.
Mr. J. H. Vivian.

MR. GROGAN, IN THE CHAIR.

Mr. *Arthur Webb*, called in; and Examined.

Mr. Arthur Webb.

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1583. *Chairman.*] WHAT situation do you hold?—I am postmaster in Cork.

1584. Have you held any other situation in the Post-office?—I have held the situation of surveyor in the Post-office.

1585. For how many years?—I think 24 or 25 years.

1586. Mr. *Murphy.*] Then I presume you are perfectly conversant with the general transmission of letters in Ireland?—I think I am, tolerably so. There are

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are always great changes taking place in the transmission of letters; almost every month I believe some change is taking place.

1587. Now, will you state the different places from which there is Post-office communication between England and the South of Ireland?—Milford is the only direct station from that part of England to the South of Ireland; I should say it is made very little use of.

1588. Now, talking of Milford as a direct station, are you enabled to state, from any calculation you have made, the number of letters, upon the average, per day that has been received in Cork by way of Milford?—I kept a check for a fortnight—I believe it was more a private check for Colonel Maberly's information, than for any official purpose—of the number of letters received for the city of Cork itself by way of Milford, and during that fortnight the greatest number we had was 38 in one day.

1589. Then I presume Dublin is the great channel of your Post-office communication?—Dublin is the great channel of all communication to Cork; it was not so much so formerly, but the establishment of railroads has changed the system completely.

1590. Now, under the present system, I believe the Dublin mail reaches Cork in summer at about half-past three o'clock, and in winter at a quarter past four in the afternoon?—Yes, that is the time at which it is due.

1591. Mr. *Vivian.*] That is, a letter sent from London on Monday evening, reaches Cork on Wednesday afternoon?—Yes.

1592. Mr. *Murphy.*] I believe, owing to the state of the roads in winter time, the communication is not very punctual?—Quite the contrary of punctual.

1593. Now, in your judgment, supposing a competing contract or contracts on the line between Dublin and Cork, would not the communication by post be much accelerated?—I have heard it generally estimated that it could be accelerated, and I believe that is admitted on the part of the contractors themselves.

1594. That it is a matter of expense?—Yes; it was never said that it could not be done.

1595. It could be done, provided the expense were met?—Yes.

1596. Now, do not the delays in the arrival of the post, in the winter time especially, frequently prevent any answer being sent that same evening?—Very frequently.

1597. At what time does the Dublin mail start from Cork in the afternoon?—At half-past six o'clock.

1598. Has it not often happened that the mail has been as late as five o'clock in arriving at Cork during the winter?—Very frequently, and later than five.

1599. Are there any mails despatched into the interior from Cork in the evening?—Yes; one for Kinsale, and as far as Bandon and Clonakilty, which are in the same locality.

1600. At what time is that mail despatched?—At a quarter of an hour after the arrival of the Dublin coach; if the Dublin coach arrive in its due course, it would be despatched at a quarter past four; it is a continuation of the same coach.

1601. Now, having stated what you have as to the Cork letters *viâ* Milford, can you form any judgment as to the number of letters which have been received for the interior *viâ* Milford?—Very few, I should say; about the same proportion, compared with the Dublin communication, as the Cork letters.

1602. What is the general Cork communication with Dublin, the number of letters per day?—I should say about 2,000 per day, upon the average; these are not all English letters; several go to the North of Ireland.

1603. Taking the whole communication by way of Dublin to be 2,000 letters to all parts, the number of letters by the English communication *viâ* Milford is 38 per day?—Yes.

1604. What mails do you despatch in the morning from Cork to the interior?—We despatch a mail for Bantry, a mail for Tralee, and a mail for Limerick, besides the smaller local mails; those are the long lines of mail.

1605. At what time does the Bantry mail leave Cork?—At half-past eight; immediately after the arrival of the Dublin morning coach.

1606. And the Tralee, when?—The time of despatch is noted to be the same, but there is generally a difference of five minutes.

1607. And the Limerick, when?—Within ten minutes of 10.

1608. Now

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1608. Now you say mails are despatched to Bantry, Limerick, and Tralee?—Yes; we despatch also a mail to Waterford, but that is despatched at an early hour in the morning, half-past five o'clock; and the mail is made up over night.

1609. At what time does the Dublin day mail, which leaves at 11 o'clock in the morning, arrive in Cork?—At eight o'clock the next morning.

1610. At what time does the Waterford mail from Milford arrive in Cork?—The letters from Milford arrive in the morning by the Cashel mail at eight o'clock; I should explain how that is. There is a mail which leaves Waterford for Limerick in the evening, at half-past eight or nine o'clock, which meets the Cashel mail at Cahir, and the mail-bag for Cork is picked up by the Cashel coach and brought on to Cork.

1611. That in fact is the Dublin day mail?—Yes.

1612. Is there also a direct mail from Cork to Waterford, passing through Youghal and Middleton?—Yes.

1613. Then is that direct Waterford mail of any advantage to Cork as a Post-office communication?—It is of no advantage whatever.

1614. At what time does that mail leave Waterford?—At nine o'clock in the morning.

1615. Mr. *Vivian.*] Supposing that the mail from Milford were to arrive at Waterford at six o'clock in the morning instead of at 12 o'clock, could the letters be forwarded by that mail to Cork?—They could, certainly.

1616. At what hour would it arrive at Cork?—That mail is due at half-past nine at night, consequently letters by it are of no use.

1617. What is the distance from Cork to Waterford?—I believe 72 miles by the line the mail travels.

1618. And at what rate does the Cork and Waterford mail travel in Ireland?—I should think not more than five miles and a half an hour; it is the worst travelling mail coach in Ireland.

1619. Could not the mail coach travel at the rate of nine miles an hour?—I see nothing to hinder it; it is a very good road.

1620. When does the mail from Milford become due at Waterford at present?—I understand at 12 o'clock.

1621. Supposing six hours to be saved in the transmission of the mail from Bristol to Waterford, and the mail were to become due at five or six o'clock instead of 12, could not the letters be forwarded at 7 or 8 o'clock to Cork, so as to arrive at Cork in time for delivery that evening?—I should say not in time for mercantile purposes.

1622. The distance is only 72 miles; supposing that to be performed in nine hours, could they not arrive in time for delivery?—I should think they would not get in in time for mercantile purposes.

1623. If it were to leave Waterford at seven or eight o'clock, would it not get in at four or five?—I should say that Post-office communication should not be viewed as a benefit to any particular place; it should be looked at in a broad sense with a view to general circulation; it should not be merely confined to whether it would benefit Cork individually, or Waterford individually, but in what way a Post-office communication would afford the most circulation. For instance, if the mail should arrive at Cork at five o'clock, even supposing that could be made available in Cork, it could not be made available to be circulated in the districts round Cork; it would be of no use to them whatever.

1624. Is it not of great advantage to have a direct communication through South Wales to the South of Ireland, by Milford?—Yes, I think if it was a good communication, it would be; I should think a good communication would be an advantage.

1625. And you would consider it a good communication if the mail could be made to arrive at Waterford six hours earlier than it does at present?—I should think so, for Waterford itself; but I should think that Cork would gain nothing by it.

1626. Mr. *Murphy.*] Is there an increasing trade between Cork and the western districts of the county of Cork?—I should think there is, very considerable.

1627. Is not Tralee becoming a town of very great importance?—Tralee is a town of a good deal of importance.

1628. Now

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1628. Now supposing the mail leaves London at half-past eight o'clock at night, and arrives at any port in the Bristol Channel in five hours and a half, and then is despatched across, and upon the average arrives in Cork in 24 hours, even taking it at the extreme average, that is from three o'clock in the morning until three o'clock the next morning; supposing the English mail to arrive in that time, would it be for the benefit of internal communication all round the districts about Cork?—Most certainly.

1629. I believe at present the time taken from London to Cork, or from Cork to London, by way of Dublin, is 42 hours?—Yes.

1630. Now what is the time letters take which are despatched from Bristol or South Wales to Cork, by way of Milford?—The only letters we get by way of Milford, I believe, are from those places immediately in connexion with Milford, Swansea, Haverfordwest, and those places immediately in the neighbourhood.

1631. Do you know at what time the mail which goes by Hobb's Point to Waterford, is despatched from Milford?—I do not.

1632. Then I presume you are not able to tell what time a letter which is posted at Swansea takes until it reaches Cork *viâ* Milford?—No; I should say we in Ireland are entirely in the dark as to the circulation of letters in England, the change has been so complete by the railroads.

1633. Now supposing the letters to arrive in 30 hours from London and other parts of England which would be in communication with that mail so despatched from a port in the Bristol Channel, would you not be able to transmit the Limerick, and Bantry, and Tralee mails at a very early hour in the morning?—Most certainly, if it was so arranged as to be an early morning arrival at Cork.

1634. Leaving London at half-past eight o'clock at night?—Certainly.

1635. Would not that have the effect of giving to Limerick, Tralee, and Bantry a day in advance in their Post-office communication?—It would give them a day in advance in their correspondence with some particular places; it would not give a day in advance with London.

1636. Would it with Bristol?—Yes, and all the West of England and South Wales; but with London, Limerick, situated as it is, could gain nothing by that arrival.

1637. Would Clonmel?—Clonmel could gain nothing in any way by that arrival from London.

1638. But all places to the west of the counties of Cork and Kerry would gain?—Yes, they would gain considerably; some 24 hours.

1639. Would Limerick gain in connexion with Bristol?—Certainly.

1640. Now, will you tell me, can you form a judgment as to the number of ship letters which have arrived at Cork, as the first touching port under the law, within the last 12 months?—I could not form any judgment so as to state the number.

1641. Can you state whether it is considerable?—We have had a great number of ship letters; the average number of ship letters which come are small in proportion to each ship; but we have had arrivals of a vast number of letters; we have had packets from the West Indies and American liners. These are casualties which are not to be looked for regularly, but driven in by stress of weather.

1642. Do you keep any account of the ship letters which are received by the steam-packets from Bristol?—We seldom get one at all.

1643. In fact, they do not pass through the Post-office?—No; they do not gain anything by coming by the steam-packets in the present mode; the steamers sail at occasional periods, they do not sail at regular periods.

1644. But, casually, they would gain if the steamer has a good passage?—Yes, occasionally they do; but they do not use it as a communication by post.

1645. Mr. *Miles.*] They send letters by the steamers, do they not?—Very seldom; perhaps once a fortnight we may have one or two.

1646. That is through the Post-office?—Yes.

1647. Mr. *Murphy.*] I need, I think, hardly ask you, is not Cork the great rendezvous for vessels sailing to different parts of the world, calling for orders and provisions?—Very extensive; it is the principal port.

1648. Is it not the great port for the embarkation of troops?—I may say it is the only port in Ireland for the embarkation of troops; they are sent over in steamers from this country to embark at Cork.

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1649. Does not that circumstance increase in a great degree the Post-office communication there?—I should rather say not; the military are not exactly the persons who make much use of the Post-office.

1650. With regard to the advantage which Waterford would derive, supposing the mail to leave London at the same hour I spoke of, half-past eight, and to arrive at the port in the Bristol Channel in five hours and a half, and to be transmitted to Waterford, say in 20 hours, which would make 25½ hours, that would make it 10 o'clock at night?—Yes.

1651. Would the districts about Waterford, as far as internal communication is concerned, derive the same advantage from that as the districts about Cork, under the existing circumstances of the mails?—I should think not; not in the same proportion.

1652. Does that arise from the regulation of the mails at Cork, as to their hours of starting, as compared with Waterford?—Yes, I should think so; I should think the arrival at 10 o'clock at night at Waterford could give very little advantage to the districts about it. Ten o'clock at night is not a period at which the departure of the mails could be made available.

1653. You have said, that inasmuch as all communication internally is sent in the morning from Cork, the anticipation of the arrival at Cork would be a great benefit, by enabling you to despatch your mails at an earlier hour of the morning?—Yes.

1654. That would not be the same in Waterford?—It could not give the same advantage in proportion; because, under existing circumstances, they would get their letters for commercial purposes as soon by Dublin.

1655. Mr. *Reade.*] Does not all that depend entirely upon the despatch of the mail from London?—Certainly; it would alter the whole system if you changed the hour of departure.

1656. Do you not think it better for the mail to go in 20 hours from Bristol to Waterford, than in 24 hours to Cork, for all Waterford purposes?—Yes.

1657. And for the county of Wexford and Clonmel, and all those districts beyond Waterford?—I should say all those districts would be benefited by going to Waterford.

1658. And the further eastward you go, the more they would be benefited?—Yes.

1659. And further west, they would be benefited by going to Cork?—Yes.

1660. Mr. *Murphy.*] Going eastward from Waterford, is there not a point where the east is as well served by the Dublin communication as by Waterford?—Yes.

1661. Then I ask you, as an inference from that, which is the district, so far as its extent of communication is concerned, which would be most served by having a communication with Cork, or a communication with Waterford, taking into account that Dublin serves the east district?—I have answered that before, that the communication with Cork would serve the district about it more.

1662. Mr. *Miles.*] You think Cork a better station for the packets to run to than Waterford, from a port in the Bristol Channel, as far as Post-office communication is concerned?—Most certainly, as far as Post-office communication is concerned; I cannot speak of it in a nautical point of view.

1663. Mr. *Reade.*] For the South of Ireland, you would prefer Cork?—I should say it would afford much more general service.

1664. Sir *Denham Norreys.*] Supposing a line of packets were established, and the average passage were such as to make the mail due at three o'clock in Cork, at what time should you consider it safe, with regard to the regularity of despatching letters by the mail, to despatch the mails with letters brought over by the English packet?—I should think there could be no difference as as to safety and regularity; I should say probably about eight, or half past eight.

1665. Then how many hours would you allow for irregularities in the arrival of the packet?—I should say from four to five hours, and that would bring the arrival to the very same period as the arrival now coming by Dublin, so as to hitch all the communications together.

1666. Adding those five hours to the 30 hours in which it is supposed the voyage could be made, the transmission of letters from the interior would be in 35 hours from London?—Yes.

1667. So

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1667. So that 35 hours must be taken as the time of departure for the interior?—Yes.

1668. *Chairman.*] You have allowed five hours for accidental delays in the arrival of the packets, from weather or other circumstances; do you think that a fair average, taking the year round?—I should say it would not be, as far as we can judge from the arrival of the present packets.

1669. Sir *Denham Norreys.*] Should you consider a margin for irregularity of arrival, which would delay the mails one in ten, sufficient?—I should say not.

1670. Would it be sufficient if it was once out of 20, that you would encounter the chances of such irregularity in despatching the mails?—I should say so; I should say one in 20 would exceed the five hours.

1671. You would consider yourself justified in despatching the mails at the hour at which you would be subjected to one delay in 20, in forwarding the letters?—I should think so, over the five hours.

1672. *Chairman.*] You stated that you consider 30 hours would be about the average from London to Cork?—I did not say so; the question assumed that I should think, under the circumstances stated, supposing the passage could be made in 24 hours, the average from London would be 30 hours.

1673. Upon the supposition that 30 hours would do, should you consider five or six hours would be necessary to add to the 30, to insure an absolute certainty in the departure of your mails to the interior?—I should say five or six hours would not be sufficient to allow for casualties.

1674. Supposing the time occupied from London to Bristol to be five hours and a half, and the mail to be put on board a vessel such as those between Liverpool and Kingstown, and the 24 hours were taken as the fair average, which would bring it to about 30 hours, what time should you consider it necessary to start your mails at, all the year round, from Cork to the interior, so as to be sure they would take the London mails?—I should say if you added five or six hours, it would be sure to do it.

1675. Sir *Denham Norreys.*] Then you would take six hours as the margin from London?—I think so.

1676. Can you state what proportion of the English letters are brought by the morning and evening mails from Dublin?—I should think the evening mail brings double the number of English letters the morning mail does.

1677. The regular line from London is by the Clonmel mail?—Yes.

1678. The mid-day mail brings those letters which have been too late to forward by the regular course?—If the packets do not arrive in time for the letters to be forwarded by the Clonmel mail at nine o'clock at night, then they would lie until the departure of the Casbel mail in the morning at nine o'clock.

1679. Is that frequently the case?—Very frequently in winter.

1680. Have you formed any opinion what improvements the present line from Dublin to Cork is capable of receiving?—I have not formed any estimate of it myself, but I believe from all the information I have derived, it could be accelerated at least from an hour and a half to two hours; I mean by common mail communication; but that is merely conjecture.

1681. *Chairman.*] Does your answer refer to the same expense that is now incurred upon the road?—No; I do not think you could get an acceleration of an hour and a half at the same expense that is now incurred.

1682. Am I to understand that if the expense was not so closely looked after by the Post-office in Ireland, an hour and a half is all that could be gained from Dublin to Cork?—I should say that an hour and a half is all that can be looked for with a fair prospect of its being carried out. I should think an hour and a half added to the present rate of speed, in the present state the roads are in, and are likely to be (for it is a very heavy road), would be as fair an average as we could reckon upon.

1683. Sir *Denham Norreys.*] It has been suggested to the Committee that if a pier were built at some point of the Bristol Channel, say Brean Down or Portishead, and if a line of packets were established from thence to some port in the South of Ireland, a line of post communication with the South of Ireland would be established preferable to that at present existing by Milford. Do you consider if a railway were formed to Holyhead, and packets such as come from Liverpool were placed between Holyhead and Dublin, and the line of

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railway from Dublin to Kilkenny, for which there has been a Bill obtained, were carried into effect, that would be a preferable line of Post-office communication to the South of Ireland, to either the one to Cork or Waterford, as it may be, which has been suggested?—I should, provided those improvements were carried out.

1684. *Chairman.*] Will you state upon what grounds you form that opinion?—There would be greater certainty in the delivery by that line.

1685. You state that occasionally some letters are brought to you by the steam-boats from Bristol, ship-letters?—Occasionally.

1686. There is a bag made up at Bristol?—Yes; when a letter is given to the postmaster at Bristol to be forwarded by the steamers, it is put into the bag and sent to Cork, and of course must come to our hands.

1687. That enables you to tell the average length of time the steamers upon that station at present take in running from Bristol to Cork; do you consider the variations in the length of the passage of those steam-boats is greater than what you have allowed (six hours), under all circumstances?—I do not think that enables me to speak with certainty to that question; for the present steam-packets from Bristol to Cork very frequently only come so far as Passage, and therefore we do not get the bag for some hours after the time of arrival.

1688. Mr. *Murphy.*] But if Passage were the point of communication, and a mail-cart was ready to receive the letters, could not you easily have the letters brought over to Cork, allowing time for transhipping them at the pier at Passage in an hour?—Yes, in less than an hour; in three quarters of an hour.

1689. Mr. *Reade.*] Now, you said if such and such things happened, such a line of railway from Chester to Holyhead, packets such as those from Liverpool, and another line of railway from Dublin to Kilkenny, that would expedite your letters by that route; upon the same principle, do you not conceive a line of railway from Bristol to Milford, through South Wales, would expedite the letters from that part of England to the South of England, more than that, supposing you could get to Milford in the same time as to Holyhead?—As regards that part of England I should.

1690. Supposing you had a line of railway through South Wales as well as through North Wales?—I should, certainly, as regards that part of England.

1691. And from London?—No, I should say not from London.

1692. But everything from the South of London?—Yes, everything from the South and West of England, I should say, would be accelerated by that means.

1693. Mr. *Vivian.*] Do you consider that if there was a line of communication through Holyhead, with steamers of the first class, that should be the only communication with Ireland?—I do not feel myself prepared to say it should be the only communication.

1694. Do you not think it would be always desirable to have a communication from the South of England to the South of Ireland, from the Bristol Channel?—I should think it would be very much to the benefit of the South of England to have it from the Bristol Channel.

1695. Do you mean a personal benefit, or for Post-office purposes?—I should say for post-office purposes.

1696. And it would be a very great injury to both countries to suppress it?—I would not say it would be a very great injury, as at present constituted.

1697. Mr. *Reade.*] If the communication were put upon a proper footing between the South of England and the South of Ireland, would it be a great injury to suppress it?—I think so.

1698. If it were put upon a proper footing, it would be a national advantage?—Yes.

1699. *Chairman.*] Supposing an efficient line of steam-packets were established at Milford, do you consider the southern part of England and the southern part of Ireland would be most benefited by their going direct to Waterford, or to Cork?—I should say, if it is to be from Milford it would be better to go to Waterford, as the passage might be made in so much shorter time.

1700. Mr. *Vivian.*] I think you say very few letters are received in the city of Cork by way of Milford?—Very few.

1701. Are any letters received in Cork by way of Milford from London?—Not any now.

1702. Nor from Bristol?—Not now.

1703. Then

1703. Then the only letters you receive in Cork by way of Milford at present, are those from South Wales?—Yes; there may be a letter from Bristol occasionally, but it is a very rare thing.

1704. Then supposing the mail were to go from any port on the south side of the Bristol Channel to Cork, how would the Post-office communication be kept up between South Wales and Cork?—That, I should say, is a question to be answered by the officers of the Post-office on this side of the water.

1705. Then supposing that by the arrangements that were to be made, the mail which now arrives at Waterford at 12 o'clock, could he made to arrive there at five o'clock in the morning; and that, allowing two hours for irregularities, the mail from Waterford could be despatched at seven o'clock in the morning, so as to arrive at Cork about the time the Dublin mail now arrives there, would that be a convenience to merchants at Cork?—No, certainly not.

1706. Could not the delivery of the letters then be effected at the same time with the Dublin letters?—They could be delivered at the same time with the Dublin letters, which the merchants at Cork now state are of no use whatever to them; that letters put into their hands at five or half-past five o'clock in the afternoon are of no use; they can do no mercantile business; the markets are all closed.

1707. Mr. *Reade.*] They complain equally of the Dublin letters, as of those from Milford?—Yes.

1708. Mr. *Vivian.*] Would not the letters arrive in Cork in the same number of hours by Milford as by Dublin?—Yes, I should think they would, by proper arrangements on this side of the Channel.

1709. That is to say, they would arrive by Milford in 42 or 43 hours?—Yes; I should say arrangements on this side of the Channel could effect that.

1710. And consequently, by means of these improvements, it would be just the same thing whether the letters were sent by Milford or by Dublin, which is not the case at present?—Yes; according to the course pointed out, the arrival would he precisely the same.

1711. The delay which takes place at Waterford at present, occasions a delay of one day in the delivery of letters at Cork?—Yes; because they arrive at 12 o'clock at noon, and wait for the departure of the mail in the evening; we do not get them until the next morning.

1712. And in the other case, you would get them in the afternoon?—Yes.

1713. Is not that a sufficient cause of itself, why letters from Bristol are forwarded by Holyhead in preference to forwarding them by Milford, the delay which takes place at Waterford and in the transmission across?—I do not think the letters from Bristol are forwarded by Holyhead; they come round by Birmingham. I cannot speak to matters of Post-office arrangement in this country.

1714. Are you acquainted with the Post-office arrangements in this country?—No.

1715. Mr. *Shaw.*] Supposing steam power applied to the very best advantage that it could he, what do you then suppose would be the most certain and the speediest mode of communication for letters, say from London to Cork?—I should say that a direct packet from some port in England, say the neighbourhood of Bristol to Cork, would be the most certain and the most speedy, unless we could carry out the idea in anticipation, that the railroad and those other improvements were made upon the Dublin line.

1716. Supposing there was a railroad from London to a port in North Wales, and then first-class steam-vessels from thence to Dublin, and a railroad from Dublin to Cork, do you think that would he the quickest and most certain route?—I should think so.

1717. *Chairman.*] There are two mails from Dublin to Cork?—Yes.

1718. Is it a mid-day mail, or a night mail, which takes the hulk of the English letters?—A night mail.

1719. Does the night mail often start from Dublin without the English letters?—Very frequently.

1720. The English mail is frequently left behind by the night mail going to Cork?—Very frequently.

1721. Are you aware by what route it comes from England?—It comes by Holyhead, I believe.

1722. Mr. *Vivian.*] You have stated there are irregularities in winter in the arrival of the Dublin mail, owing to the bad state of the roads, and other causes?—That

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—That is, irregularities in the arrival of the Dublin mail, not irregularities in the arrival of the English mail, which frequently arrives too late in Dublin to be despatched by that mail; that is from the failure of the passage across.

1723. Does it often happen that you do not receive the English mail by the four o'clock Dublin mail?—Very frequently.

1724. Then supposing the letters should be forwarded from London by way of Milford to Cork in the same time as by way of Dublin, would it be a convenience to merchants at Cork to have two channels open to them, so that a duplicate letter might be sent?—I should think it would; it would give a double chance for arrival, and so far it would be a convenience.

1725. It might occasionally happen that the passage could be made by Milford when it could not be made by Holyhead?—Yes.

1726. And sometimes it might happen that passage might be made from Holyhead when it could not be made by Milford?—Yes.

1727. *Chairman.*] You stated that sometimes the mail from Dublin containing the English letters arrived later than the regular time in Cork; how many hours later, upon an average, has it been?—I should say, upon the average through the winter, from an hour to an hour and a quarter.

1728. Of course, then, as it leaves Dublin at a stated hour, the delay must be after it leaves Dublin?—It does not start at a regular hour from Dublin. If the packet does not arrive in Dublin at a certain time it is the practice to delay the mail from half an hour to 40 minutes.

1729. Consequently, out of those numbers of times in which the mail comes without the English letters, the greater part of the delay must have been upon the water?—Yes.

LORD INGESTRE, IN THE CHAIR.

Captain *Merion Moriarty*, called in; and Examined.

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1730. *Chairman.*] DO you command a steamer from Bristol to Cork?—I do.

1731. You have been in the Navy, I believe?—Yes, I am a Lieutenant in the Navy.

1732. What is the name of the steamer you command?—The Queen.

1733. Have you been long in the command of the Queen?—I have commanded the Queen for the last four years; I have commanded steam-boats for the last 10 years.

1734. Mr. *Murphy.*] You have commanded steamers between Cork and Bristol?—I have, for five years.

1735. In fine weather, is that the favourite mode of communication between the West of England and London and the South of Ireland, to come *viâ* Bristol by your steamers?—I think in the summer time it is.

1736. What is the general average of your passage in the summer time from Cumberland Basin to Cork?—I think it might be stated at about 25 or 26 hours; it is frequently very much under that, but I think upon an average 25 or 26 hours.

1737. Now, supposing there was a packet station at that place which has been pointed out to you on the map, Brean Down, in the Bristol Channel; how much would that accelerate the communication, supposing the vessel were to start from there?—I should think that would make a difference of an hour and a half or an hour and 45 minutes, according to the state of the tide.

1738. I believe at times a very strong tide runs in the Bristol Channel there?—Yes.

1739. Now, supposing a better class of steamers, say from 500 to 600 tons, made solely for carrying the mails and passengers, without cargoes, except coals, of 250 horses power each; how long do you conceive would be the average passage through the year of such steamers form Brean Down to Cork, the best-found steamers, such as those from Liverpool to Kingstown?—I think a properly appointed steam-boat would make the passage from Brean Down to Passage in 18 or 19 hours in fine weather, and I think in bad weather a difference of 10 or 12 hours would arise.

1740. Then

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1740. Then, striking an average through the year, you would make it 25 or 26 hours all the year round ?—Yes, it would be more frequently under that time than over; occasionally it would exceed that very much; but in general it would be under that, I should say in five days out of seven.

1741. Now have you in the course of your navigation frequently made the entrance of Cork harbour at night ?—Very frequently indeed.

1742. What is the nature of the soundings entering Cork harbour ?—They are very accurately laid down in the chart.

1743. Are they regular or irregular ? —Very regular indeed.

1744. Now have you entered the harbour itself and made Passage at night frequently ?—I have gone into Passage at night a hundred times.

1745. Have you any difficulty when you see the light at Roche's Tower, in going up to Passage to the anchorage there ?—Not the slightest in the world, if you can see 200 yards a-head; the only difficulty is steering a vessel in a fog or very dark night.

1746. But as to the difficulties of the navigation ?—I consider there are none whatever.

1747. Are you acquainted with the harbour of Waterford ?—I have been at Waterford occasionally; I commanded a steam-packet going from Cork to Dublin, calling at Waterford, four months.

1748. Did that put into Waterford ?—Yes, twice a week, up to the quay at Waterford.

1749. Are you aware whether there is a bar which you have to cross going into Waterford harbour ?—There is a bar at Waterford harbour.

1750. Will you state what is the least amount of water you have ever found upon that bar ?—I have found two fathoms water upon it.

1751. That is the lowest, I suppose ?—Yes, I was in a small steam-boat at the time, and I wanted to ascertain what the depth of water upon the bar was, and it was precisely two fathoms. I will not say that in some part of the bar it might not be a foot or two more, but in the direct channel in which I sounded, the water was two fathoms.

1752. What depth of water did your vessel draw ?—The vessel I commanded then drew about eight and a half feet.

1753. Now what depth of water in your judgment would a vessel of the size I have described, and found in the best way, even supposing it was an iron steam-boat, draw ?—I should suppose a vessel such as you speak of would draw 10½ or 11 feet. They might be of lighter draft of water, but they would require a flat floor. I think a large vessel of 250 horses power would draw that.

1754. Supposing they were not iron boats, what should you say would be the depth of water a vessel of that kind, not iron, would draw ?—I should say 11½ feet of water is the lowest draft a boat of that large size could be calculated to draw.

1755. Now, would a wind blowing to the southward over that bar have the effect of reducing the depth of water over the bar ?—I should not say a southerly wind would reduce the depth of water; on the contrary, I should say the effect of it would be to increase it; but I think a southerly wind would create a great difficulty in getting over it.

1756. Is it not the case, that when the wind sets in from certain points, though it has the effect of driving water upon the bar, it takes the water over the bar so as to make it more difficult to get in ?—There is no doubt the danger will be greater if there is a strong wind.

1757. In a gale of wind you consider the danger is greater ?—Yes, the vessel would ascend; I should say it would not be prudent to go over the bar with less than six feet, with a gale of wind blowing over the bar.

1758. When you get over that bar into Waterford harbour, are there not two ways of getting up to the quay at Waterford, right and left; are there not two small channels ?—There is an island in the neighbourhood of Waterford, forming two passages at certain times of the tide; one is navigable at all times of the tide, and the other only at certain periods.

1759. The one that is navigable at all times of the tide, is that a safe passage to go into at night ?—I think not.

1760. Will you state your reasons for forming that judgment ?—Vessels going up to Waterford are always carried up by pilots, and it has occurred to me

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more than once that the pilot has refused to bring the vessel down at night through that passage.

1761. Has he stated the reason?—The tide runs down with great velocity, and sets upon the rocks, and the channel is very narrow and particularly winding, and therefore it requires a great deal of caution, and it is considered a very unsafe thing to do it at night; I will not say it never is done, but no pilot would bring me down at night.

1762. On account of the tide setting upon those rocks, and the narrowness and winding nature of the channel?—Yes.

1763. Have you ever experienced any difficulty of that kind in making Cork harbour?—There is no difficulty whatever in going into Cork.

1764. I believe your company has two steamers direct between Cork and Bristol?—No; they have not.

1765. There are two steamers, one of the St. George's Company and one of your Company, from Cork to Bristol?—Yes.

1766. Is there not a very considerable traffic between Cork and Bristol?—There is.

1767. Are there many passengers go from Cork to Bristol?—Yes, a great many in the summer season.

1768. And you have told us a great many came from Bristol to Cork in the summer season?—Yes, and return; the averages are nearly equal.

1769. Can you state the average of cabin passengers in summer by your vessel?—In summer I think they vary from 20 to 40; sometimes more, but I should think 25 is about the average number in the summer, or perhaps 26 or 27.

1770. That is by your own steamer?—Yes, by the vessel I command; I know nothing of the others.

1771. You know nothing of the Victory?—No; I take for granted it is somewhat similar.

1772. Do you know the Bristol Channel well?—I think I do.

1773. Have you had great experience in going up and down?—Yes.

1774. Now, from your knowledge of the Bristol Channel, which should you conceive it preferable that any steam communication should start from, Bristol, the place called Portishead, or Posset Point, or Brean Down, supposing there were a harbour there?—I do not know Brean Down; I have never been there.

1775. But from its position?—From its position it is clear there are some facilities, if a good harbour were made there. Supposing there were a fair starting-place, there is no doubt that Brean Down would be preferable to Portishead, as far as the communication with Ireland is concerned.

1776. In that part of the British Channel, Brean Down, would you be likely to encounter fogs so frequently as nearer Bristol?—Yes, I think you would; I do not think there is much difference in that respect.

1777. Mr. *Miles.*] Can you run up the Bristol Channel in a fog?—I run up a little to the west of the Holms.

1778. There is no difficulty whatever in that?—I think there is great difficulty, but it applies to all parts of the Channel equally.

1779. Mr. *Murphy.*] Should you have the same difficulty in a fog in making Brean Down, supposing that to be the harbour, as in making Bristol?—I should not like to give any opinion about dealing with fogs; I think they should be viewed with very great caution. Of course, the further you have to go the greater the difficulty is; but I think you ought to proceed with very great caution in fogs, not so much on account of the vessel you are in, as of the liability of danger to others.

1780. Mr. *Vivian.*] The mail-coach can travel with more regularity in a fog than a vessel?—There is no doubt of that.

1781. Mr. *Murphy.*] Has it not happened to you more than once to anticipate by your steamer the arrival of the mails by the ordinary channel of communication?—I have delivered London letters and newspapers in Cork in 27 hours, within the last three months.

1782. Twenty-seven hours from London?—Yes.

1783. Your time of starting from Bristol suited the arrival of the mail?—Yes; it so happened that we started just as the mail arrived, and we arrived in Cork in 23 hours, allowing four hours for the passage down from London. We have done that this year, and we did it last year also.

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1784. I need not ask you whether it would be a great advantage to the merchants at Cork to have a communication with the South of England in that way instead of the present?—I should think so; that is all matter of opinion, about which any other person is as capable of judging as I am.

1785. Do you not know that the people of Cork now complain very much of the delay of their letters by the ordinary mode of communication?—Yes, I know they do; I have heard several persons complain of that.

1786. Sir *D. Norreys.*] Were you not delayed several hours in a fog lately?—In the last passage from Cork I was at anchor 23 hours in a fog.

1787. Whereabouts did you anchor?—I was at anchor about seven miles above the Nash Point, nearly midway between the Holms and Nash Point.

1788. Consequently it would have signified nothing to you whether you were going to Portishead or Brean Down; you would have anchored in either case?—Yes, in either case; I had a regiment of infantry on board, and it was necessary to be very cautious.

1789. Are you frequently obliged to anchor from fogs in the Bristol Channel?—It has happened only four times in five years; it has happened to me on entering other ports as well; I have anchored in a fog at Liverpool. The same thing is liable to occur, no matter where you are.

1790. Taking the most unfavourable circumstances in which a vessel could be placed from Brean Down to Portishead, or from Portishead to Brean Down, what would be the greatest length of time she would take?—There might be some circumstances which would detain a vessel there 12 or 14 hours. As I am to take the most unfavourable circumstances, there are cases in which it would not be prudent to attempt it at all.

1791. Are there not circumstances when it would be prudent to go into Brean Down, when it would not be prudent to go into Portishead?—If you could get there; I should explain that; you must take it not alone with reference to yourself, but with reference to the safety of others, for being in command of a steam-vessel in a narrow navigation where there are many vessels at anchor, probably the first you know of being in danger is striking a vessel down.

1792. The tide runs up very rapidly, does it not?—Yes.

1793. Supposing there were no fog, and taking into consideration only the current and wind, what would be the time that a vessel would be delayed from Brean Down to Portishead, or from Portishead to Brean Down?—I think against the tide, not more than an hour and a half, or an hour and three quarters.

1794. Do you state, that under the most unfavourable circumstances, supposing there were no fog, that you do not think a vessel could be delayed more than one hour and a half, or an hour and three quarters, from Brean Down to Portishead?—I think not.

1795. What do you think would be the difference, upon the average, of passages between Waterford and Passage, starting from Brean Down?—I think there would be a difference of about four hours in fine weather.

1796. *Chairman.*] What would it be in a heavy gale of wind; what would you allow for the difference?—I think if it blew a gale of wind from the west or west north-west, you should not allow a greater difference than five or six hours, because you can go along the Hook Point at the rate of five or six miles an hour, so that you get on to Cork without much delay.

1797. In blowing weather, is it your practice to make the land in the neighbourhood of Waterford, to go to Cork?—No, never; I generally make the land, in blowing weather, in the neighbourhood of Youghal.

1798. And you run along the land?—Yes.

1799. In going out of the Bristol Channel in heavy westerly weather, do you hug the Welsh coast, before you leave the Bristol Channel?—If it blows from the north-east, I go along the Welch coast; starting as we do at present, with reference to the tides, by adopting the course I speak of, we get the ebb-tide inshore sooner than in the offing, and of course we get off sooner.

1800. If you left the Bristol Channel at all times of the tide, should you pursue that course?—If you left Brean Down, and went to the southward of the Steep Holms, you would always make the direct course, and with such steam-boats as have been mentioned, the most direct course they could go would be the quickest way of getting to the end of their passage.

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1801. Sir *D. Norreys.*] What is the longest time you have ever been in making from the Holms to Portishead?—I think I have been three hours and a half or four hours, starting against the ebb.

1802. Are you aware that Brean Down is more outside the Bristol Channel than the Holms?—It is abreast the Steep Holms.

1803. Then there are times when you would be four hours from Brean Down to Portishead?—No, I do not think that necessarily follows; the state of the tide may be different. The tides vary much, and I am not acquainted with the set of the tide from Brean Down to Portishead; I have never been in-shore there, and therefore I am not competent to give an opinion upon it; but I think the distance may be run in general in the time I have stated. I have been three hours and a half going from Portishead to Kingroad.

1804. Looking at the position of Brean Down upon the map, would it not appear to you the same space of time might be taken from Brean Down to Portishead?—I do not think the tides run so strong in-shore there, as they do out to the northward of the Holms.

1805. At the time you stated you may have been four hours making from the Holms to Kingroad, would you not have taken the most favourable part of the Channel for the navigation?—Yes, I would, of course.

1806. Then, to what does your answer refer, that the tide might not run so quick at one part of the Channel as the other?—I am not prepared to give an opinion about the direct passage to Brean Down. If you have to come out to the Holms, it would make the difference I have mentioned going from the Holms, but if you go close in-shore, I cannot state the time; I have never been in-shore. If it is wished to ascertain what are my views as to the best port, I have stated that Brean Down would afford a certain advantage; I do not wish to give an opinion upon a place I do not know.

1807. Mr. *Miles.*] What is the average speed of your vessel?—About 10 knots, in an easy light wind; in moderate weather, but not head to wind, nine, eight or seven, according to circumstances; she is not what a Post-office packet ought to be.

1808. *Chairman.*] What should you think a packet of the description which has been given ought to steam upon an average?—I think a Post-office packet ought to steam 11 knots in fine weather, and in bad weather eight.

1809. In a heavy gale in the Channel, until you get clear of Bristol, what average would you give her?—Just the same.

1810. You would make no allowance for a heavy gale of wind in the Bristol Channel?—No; I steamed out of the Bristol Channel in the heaviest gale of wind, I think, that ever blew into it, in the Juno, and steamed seven or eight knots an hour.

1811. Taking that same gale of wind when you got outside, what did you steam then?—We went to Dublin at the same rate.

1812. If you had been going to Cork on that occasion, what would she have steamed?—I think not less than seven and a half, or eight knots an hour.

1813. And a Post-office packet, you think, ought to have gone quicker?—I think so.

1814. Mr. *Vivian.*] At what rate can you navigate the Bristol Channel in a dark night at low water?—As fast as the vessel can go; there is no limit to the rate.

1815. In a dark night, and at low water?—Yes.

1816. Is not the Channel very narrow?—No.

1817. I speak of the Channel to Portishead?—No, you may go as fast as the vessel can go; there is no difficulty, except in a fog.

1818. *Chairman.*] You are acquainted with Milford Haven?—I have been in there.

1819. If a vessel were bound to Waterford or Cork, do you think she could call daily at Dale Bay or Milford Haven?—I think it would retard her passage very much.

1820. To what extent?—I think in bad weather it would make a great difference.

1821. With reference to Cork or Waterford?—It would not make much difference.

1822. Would it not be more out of the way of a vessel bound to Cork than of one to Waterford?—In fine weather the two vessels generally go together to Milford; in a mail packet you would keep more to the southward.

1823. Taking

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1823. Taking the same sort of packet, would it not be more out of the way of a vessel going to Cork to call at Dale Bay, than of a vessel going to Waterford?—It would, no doubt; going in a direct line from Brean Down to Cork, it would be more out of the way to call at Milford than of a vessel going to Waterford, because a vessel going to Waterford would go through the islands.

1824. You are well acquainted with Waterford Harbour?—Yes; I commanded a packet calling at Waterford five months.

1825. Mr. *Reade.*] How far up the river at Waterford is the bar?—In what I said with reference to the bar, I meant to say it was in Waterford Bay, by Duncannon.

1826. How far is it from the Hook?—About four or five miles.

1827. Is it not more than four or five miles?—I think four or five miles.

1828. How far do you consider Duncannon from the Hook?—About nine miles.

1829. Mr. *Miles.*] What is the width of the bar at Waterford?—There is a bar across the entire entrance, from the west buoy to the east buoy.

1830. What is the distance between the two extreme points?—I should suppose a mile and a half.

1831. Mr. *Vivian.*] Are you acquainted with the Mumbles?—No, not very much; I have never been there much.

1832. Which would be the most out of the course to call at, the Mumbles or Dale Bay, in the passage to Waterford or to Cork?—I think, generally speaking, the Mumbles would.

1833. Sir *D. Norreys.*] Are you acquainted with the harbour of Milford? —I have been there; not very often, about a dozen times.

1834. Supposing a vessel were on her course from Brean Down to Waterford, what additional time do you think it would take upon the average for that vessel to be obliged to put into Milford Haven, and go up to Hobb's Point, to take the mail, and then regain her course?—It would make a difference of five or six hours to go to Hobb's Point.

1835. Should you take it at an average of five or six hours?—Yes.

1836. Mr. *Reade.*] How much of that difference would be saved by going to Dale Bay instead of Hobb's Point?—You could go much sooner to Dale Bay.

1837. How much sooner?—The time it would take to run through the whole of Milford Haven.

1838. Would that be three hours out of the five?—Yes, full that.

1839. Mr. *Vivian.*] What time would it take to go to the Mumbles?—That would depend a great deal upon the state of the tide and wind; there are certain states of the wind when it would be very imprudent to go in there.

1840. But supposing a pier were made at the Mumbles for the protection of vessels?—I am not prepared to give an opinion upon that; I have not been to Swansea, except merely in passing.

1841. How far do you pass from the Mumbles Head?—Four or five miles, or six miles sometimes.

1842. Mr. *Miles.*] What number of passengers are you in the habit of carrying from Cork to Waterford?—In the summer we carry from 25 to 40, and in the winter 14, and sometimes 20.

1843. Do you think if there were a daily communication with larger packets, and more accommodation, the traffic with Cork or Waterford would be increased?—I do not think it would; I think every person at present who wishes to go direct to the South of Ireland, does so, with a few exceptions; a nobleman would prefer travelling to Dublin; but generally speaking, all persons who go backwards and forwards avail themselves of the present communication.

1844. Mr. *Reade.*] That is by the steamers?—Yes.

1845. Do you not think that mail-packets would make a difference in winter?—I think there are few persons who travel that way in the winter.

1846. Suppose a person were obliged to go from necessity?—I think persons obliged to go from necessity, except a nobleman careless about the expenditure of money, would go by the present communication, except that there might be more traffic if there was more accommodation. That is always found to be the case.

1847. Mr. *Vivian.*] Are your returns principally upon the conveyance of goods or passengers?—I think principally upon goods. There is in the summer

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a considerable sum of money had by passengers, but the principal thing is the cargoes from Cork.

1848. Then if they only took passengers the steamers would have a difficulty in paying their expenses?—My opinion is, that the steamers could not be kept up.

1849. The steamers would not be kept up for the conveyance of goods alone, or passengers alone?—That is my impression.

1850. Mr. *Morgan.*] Suppose a daily passage were to be made from Brean Down to Waterford, and from Hobb's Point to Waterford, which do you think could be made with the greatest certainty and regularity as to time?—If a proper line of packets was put on I should say that there being a shorter distance to go, you could make it from Waterford with more accuracy.

1851. I am speaking of vessels of 500 tons with engines of 250 horses power?—I think you might take it that the passage would always be made with the greatest certainty where the passage is shorter.

1852. Probably there would be less danger of encountering other vessels in a fog at Milford than in the Bristol Channel?—No, I think it would be the same. I have been as much alarmed off Milford as in the Bristol Channel. The greatest danger that ever happened to myself was off Milford; I was very nearly sunk by a steam-boat off there.

1853. Mr. *Vivian.*] As a general principle, the shorter the voyage the less the irregularity?—Yes, I think so; there can be no doubt of it.

1854. Mr. *Morgan.*] You think passengers alone would not repay the expense of a steam-boat?—I am sure they would not.

1855. Then supposing steam-packets were established between Brean Down and Waterford merely to carry passengers and the mail, those packets would not pay their expenses, or anything like it?—My opinion is, that most assuredly they would not.

1856. And the expense of the voyage from Brean Down to Waterford would be greater than the expense of the passage from Milford to Waterford, inasmuch as a greater quantity of coal would be consumed?—Yes.

1857. Mr. *Miles.*] Do you give that opinion, considering there is not sufficient traffic between the South of England and the South of Ireland?—My opinion is, that passengers alone would not defray the expense of a packet establishment; that is my impression.

1858. Are you not aware that a great many people from the South of England go round by Dublin now?—I believe some do.

1859. Are there not a great many?—I do not know that there are a great many from the south; some do.

1860. Having a direct communication is very desirable?—I think it is very desirable.

1861. And do you not think a great many more would come from the South of Ireland?—Yes, some would; half the people go by Dublin now, because they prefer a shorter sea voyage.

1862. Is it not a great objection, coming with pigs from the South of Ireland?—That operates only with a few.

1863. Mr. *Vivian.*] Have you ever fallen in with the packets from Milford to Waterford?—Yes.

1864. How do you find them as to speed?—The packet I command would run away from any one of them.

1865. And you consider the Milford packets are very deficient in point of power?—Yes.

1866. Mr. *Miles.*] You do not consider yours a very fast one?—No.

1867. Nothing like so fast as the vessels of which you have been speaking?—No, not so fast as steamers of that description.

1868. Mr. *Morgan.*] Do you think, if there was a more efficient communication established between Milford and Waterford, the people of Cork would be more inclined to go that way?—No, I do not think any person would go from Cork to Waterford for the purpose of going in a mail packet to Milford. It might be the case with a few, but it would be the exception, and not the rule.

1869. Suppose packets were to run from Milford to Cork, do you think passengers would go by those packets?—Not if another vessel were going from Bristol; they would go from Bristol instead.

1870. Mr.

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1870. Mr. *Reade.*] They would avoid South Wales?—Yes, the land journey.

1871. *Chairman.*] That is the principal objection, the land journey?—Yes.

Mr. *George Stow*, called in; and further Examined.

Mr. *George Stow.*

1872. Sir *Robert Ferguson.*] IN reference to a statement in a return put in by the Post-office, relative to the time occupied in the circulation of letters from a few selected towns in England to Waterford and Cork, is there any mail made up going from Bristol by Holyhead to Waterford or Cork?—No, there is not. It was put in in accordance with the orders of the Committee, to show the time a letter would take to circulate by that route.

1873. Is there any return mail sent back by Birkenhead?—None.

1874. Could you prepare a return, showing at what hour a letter from Waterford would reach Bristol, or those other towns, if it were forwarded from Dublin in such a manner as to arrive in London on the following morning, instead of arriving at mid-day as it does at present?—Yes.

1875. Will you make up such a return?—I will.

Mr. *Thomas Parsons*, called in; and further Examined.

Mr. *T. Parsons.*

1876. Mr. *Murphy.*] I WISH to ask what is the mode generally adopted by the Waterford merchants in sending their letters now to London; do they send them by Dublin, or send them by Milford?—If posted before the departure of the Dublin mail at six o'clock, they go by Dublin; and after the departure of the Dublin mail they go by Milford.

1877. Can you tell us whether the great majority of letters for London go by Milford or Dublin?—They go by Dublin.

1878. Do not the merchants in fact manage their correspondence with a view to sending it by Dublin instead of hy Milford?—Yes.

1879. And do they not prefer receiving their letters by Dublin rather than by Milford?—Yes; the answers go round by Dublin.

1880. Mr. *Vivian.*] Supposing an arrangement could be made so that the packet could arrive at five or six o'clock in the morning instead of at 12, would what you have stated be the case?—No, I think not; I think then they would go by Milford.

[*For Questions* 1881 *to* 2044*, *see pp.* 108 to 115.]

Mercurii, 4° die Maii, 1842.

MEMBERS PRESENT.

Mr. Corry.
Lord Emlyn.
Mr. Grogan.
Mr. Miles.
Mr. Murphy.
Mr. Reade.
Mr. Shaw.
Mr. J. H. Vivian.

LORD INGESTRE, IN THE CHAIR.

Commander *Henry Mangles Denham*, R.N., F.R.S., a Marine Surveyor to the Board of Admiralty, called in; and Examined.

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2045. *Chairman.*] YOU have been employed in surveying the Bristol Channel?—I have.

2046. How long were you employed there?—Three years.

2047. When did you complete your survey?—In the autumn of the year 1832.

2048. Will you state the extent of your survey?—From St. David's Head, Pembrokeshire, up the north side of the Channel, including Milford Haven, and all the details of the coast to Cardiff, across to Clevedon, and down the south shore to Hartland Point, below, including Ilfracombe, Barnstaple Bay, and Lundy Island.

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2049. Are those the limits of the Bristol Channel?—They are, including Kingroad, which I surveyed also in 1824.

2050. Will you be so good as to state your opinion as to the facility of a steam-packet constantly navigating up and down the Bristol Channel at all times of the year, and at all times of tide?—If I am to understand that such a steam-boat must leave any particular point at a given hour, without reference to tide, I may say, that inasmuch as the Channel narrows immediately to half its width, above the line between the Mumbles Head on the one side and Ilfracombe on the other, intercepted by the Scarweathers and Nash Sands on the north shore, the tides above that line are so subject to in-draft on the north shore, that no course of an arriving vessel, unless aided by the flood tide, could be expected to prove correct; that nothing but having lights in so close a connexion with the shore can insure a vessel's arriving at the destined point. There is an instance on record, since the Nash lights were erected on the site my survey suggested, of the Board of Admiralty, in the Admiralty yacht, running upon the Nash Sand; that was in the autumn of 1840. A previous instance was one of a most fatal nature, the Frolic steamer. It was supposed that had the Nash lights existed then, that vessel would not have been lost with the 60 hands that were lost in her. She was wrecked about five hours after she left the harbour of Tenby, on her way to Bristol. I conceive that without a succession of lights above the Nash Point, no vessel can ever traverse as far as Flat Holm with any degree of certainty as to course. This applies less to vessels which are moving according to their own convenience and judgment, instead of stipulated Post-office times. Vessels do shorten sail, steamers do slacken speed, and time their arrivals at Kingroad according to the time which suits the tidal capacity over the shoals; but when the question hangs upon a vessel having to arrive without ceasing speed, in order to meet the given hour of the Post-office regulations, I hold that all such intercourse, above the line from Nash Point across to the other side of the Channel, is a matter of jeopardy.

2051. Is the Committee to understand, that supposing a sufficient succession of lights, a vessel might, in your opinion, perform that duty satisfactorily?—Yes, with a succession of lights, the number and arrangement differing very much again after we pass the line of what is called the Holms.

2052. Will you state the lights you would recommend?—In passing from the Nash Point, you lose the lights, in the average state of atmosphere, before you pick up the Flat Holm light.

2053. How far do you see the Nash light?—Fifteen miles; and if I take the other at 20 miles, there is a distance of 25 miles in total darkness, under ordinary circumstances of atmosphere, as the lights do not range more.

2054. How would you remedy that?—By a light upon the Roos Point.

2055. What reason have you for recommending that point?—It being the most protruding, and on which the tide sets, influenced by the Bight of Aberthaw. Such a light is the more essential, as off there lies a bank (scarcely noticed except on the chart before the Committee) called the One Fathom Bank. I am then supposing a vessel arrived between the Holms by the aid of the lights. On proceeding eastward of the Holms, she meets, since the survey suggested it, a light-vessel moored upon the Welch grounds; but as the Welsh grounds are ever changing, and the fair-way is rendered extremely narrow, being under a mile, considering the chances of that light-vessel being at her moorings (a casualty which affects and disturbs all confidence with respect to channels depending on floating lights), the running for that channel is most hazardous. The late light erected at the mouth of the Avon does come in play, under ordinary circumstances of atmosphere and weather; but by no means so invariably or definedly as to relieve a vessel from the difficulty and risk of running on a back bearing of a single light.

2056. Is the light upon the Flat Holm easily distinguished, both to the eastward and the westward?—Yes. I can only, however, ascribe the few disasters which have occurred to the many trading steamers and other vessels navigating between Kingroad and the Holms, to the fact of their being enabled to choose and select their times of tide for departure or arriving; that, as I before said, dare not be considered by the commander of a Post-office vessel; he must run at all hazards at the stated hour.

2057. That is your opinion of the navigation up to Kingroad?—Yes.

2058. Would

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2058. Would those difficulties occur if it stopped short of the navigation above the Holms; at Brean Down, for example?—Yes; I consider that as a vessel bound to Brean Down (not, of course, to Uphill River) would be courting the south side of the Channel instead of the north, we have only to provide for the Culver Bank, which draws up and extends across the mouth of Bridgewater Bay, by adding a screw-pile lighthouse upon that sand, or by a light-vessel, as the party might decide. I have been the means of establishing a lighthouse upon the screw-pile principle (that is, screwing the piles into the sand, instead of mooring a light-vessel off it) at Port Fleetwood, in Morecamb Bay; and as it has stood so perfectly for three years, at but half the first cost, besides requiring no duplicate (for a second light-vessel must be always ready to replace the first in case of accident), and at one-third of the annual expense, a principle upon which the Ballast Board of Dublin are now erecting one upon the Kish Bank in the Irish Channel, in consequence of their knowledge of this lighthouse, called the Fleetwood Lighthouse. (*Description, specification, and plans are put in*). Indeed, I never now speak of a light-vessel without leaving it to the option of the parties who control the locality to adopt the one or the other, from any local reasons they may have. Supposing, then, a light, thus proved to be so superior to any light-vessel in any situation, adopted for the Culver Sand, we should have a passage, whether inside (that is, to the southward of the Culver Sand), or outside (that is, to the northward), so guarded as to make the approach to Brean Down as safe as if approaching Flat Holm Island itself, remembering that the up and down courses of the Bristol Channel lie east and west, thereby subjecting the actual course made to the greatest amount of local attraction, as well as oblique tidal sets, that make it necessary to lay stress of caution when depending upon compass course. I would therefore prefer a leading line of two lights, which sets the courses and bearings all at rest. I conceive a light might be erected upon the point of Brean Down, or upon the point of any breakwater extending out upon the How Rocks, which would afford a clearing course for the Culver. We are, moreover, assisted upon the south shore by the two lights erected by the Trinity House, in the year 1832, as suggested by the survey at Burnham, in the Bridgewater navigation.

2059. Can you see those lights when to the northward of Culver Sand?—Not both lights; their united focus being chiefly intended for the Bridgewater Bar; the upper light however, which is a revolving one, assists to indicate when you are to the eastward, as well as keeping in sight when northward of the Culver. With the permission of the Committee, I will read a paragraph from my "Sailing Directions," which were published by the Board of Admiralty in 1839: "The Bridgewater or Burnham lights stand 1,500 feet apart, in the direction E. S. E. ¼ E. The upper or inner lighthouse is a white tower, 96 feet above high water. This light is intermittent, showing brightly for only half a minute and then obscured for three minutes and a half; it may be seen at low water by an eye elevated ten feet, from the distance of sixteen miles, on any bearing between E. by S. and S. S. E.; to the south of which it is masked, in order to lead between the Culver Sand and Steep Holm, N. N. W., passing a third nearer to the latter than to the Culver. The outer or lower lighthouse is a square, white structure, with a black streak down its centre, and stands 450 feet outside of the high-water mark on the strand, and being 21 feet above high-water mark, and 59 feet above low-water, may be seen 12 miles by an eye raised 10 feet, so that both lights are visible to the westward of the Culver Sand as well as off Little Stoke Point. The lower light is fixed, that is, it does not revolve like the other; but in order to render the approach to this flat shore and dangerous bar more secure, it is so contracted as to shine brilliantly only between the bearings of E. by S. and S. E. by E. ¾ E., the former passing 1½ miles to the southward of the Culver, and the latter between Stoke Spil and Kilve Patch. In like manner, it only shows brilliantly throughout the proper passage across the bar and the mid-channel between the Start and Berrow Flats; and, therefore, inside as well as outside of the bar, any diminution of its usual strength shows at once that the vessel is approaching too near to either one side or the other." These lights being so changed renders the south channel between the Culver and Bridgewater Bar, towards Brean Down, the best to determine upon under the average circumstances of wind and weather. It is, or ought to be, a maxim with every navigator in the Bristol

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Channel to hug the south shore, to avoid the effect of the sea which the prevailing winds throw upon the opposite side, the north shore. The boldness of the land from Ilfracombe to Minehead, and there being no off-lying danger, except the Copperas Rock under the Hangman Hill, until between Bridgewater Bar and the Culver, so that Brean Down Point becomes the best point for approach or departure, whenever Post-office arguments suggest that a higher point than Milford or the Mumbles should be adopted. At the same time, the higher any vessel passes above Ilfracombe in the Bristol Channel, the more she is open to the casualties of a channel so affected by tidal deviations, especially when such vessel is restricted to positive times of departure. In saying this, I do not pretend to say that Ilfracombe even is preferred as a port for landing at all times of tide.

2060. Without reference to those packets, should you conceive it to be necessary, for the general improvement of the navigation, that the lights you have mentioned should be erected?—No; I consider that the Bristol Channel, at this moment, is lighted and buoyed on the most liberal system, and that when vessels can select their own times of departure or arrival, knowing what the rise of tide is, and how much of that which is the dangerous now will not be so in two hours hence, it is amply lighted and buoyed. Previous to the survey now before the Committee, it was as precisely the reverse; but the Trinity Board no sooner saw the whole features delineated, than they at once went to an enormous expense in doing liberally that which I have said is ample.

2061. Would the expense be very great of putting a light upon the Culver?—Not more than 4,000 *l.*

2062. And upon the Roos Point?—Upon the Roos Point it would be 5,000 *l.*

2063. And costing what additional sum annually for maintenance, lighting, and so on?—£.500 per annum for the Culver, and 300 *l.* per annum for Roos Point light. I would add to the facts I have stated, that the trade is very tardy in applying for lights, and in consequence of the Trinity Board being unable to put on a toll, unless a petition for the light comes from the owners of vessels as well as the masters, lights are not erected where the Trinity Board would at this moment cheerfully erect them. The owners are supposed to be essentially necessary parties to a petition for a light, as it of course entails some additional tollage, and of consequence lights are not readily petitioned for; the evil of that system is, that whilst the owner must be anxious for the lives of his crew, yet he does not fully sympathise with the masters, because he comes not into those positions which masters of vessels alone can understand and feel. If I go further, I am constrained to assert that an indifference exists on the subject, arising from the compensating system of insurance.

2064. Is it not possible for the Government or Legislature to step in and recommend to the Trinity Board to erect lights, where, as you say, there are not sufficient petitions from the owners of vessels, from those combined causes?—I believe any application, or any desire expressed by the Government to the Trinity House, would lead to the erection of a light; but that light would be erected without any toll being paid upon it.

2065. What funds have they to meet the expense?—I am supposing they are always in possession of some funds, which would enable them to erect a light. If they had funds, they would dedicate them to that purpose; but the result would be, that without a petition from the trade, before or after, they could not, as the law or usage now stands, levy any toll, even for the maintenance of the light. The course of getting up a petition of traders and merchants for a light, the time it has to lie for exhibition at different custom-houses, and the manner in which there must be witnesses brought to say they saw each man sign, unassisted by voluntary feeling, combine as a drawback upon the good the Trinity House might do, and is really worthy of legislative remedy. Lights erected by local trusts and interest often become a most severe burden upon the local funds, and unless a petition could be got up from the trade (which I suppose scarcely possible), a general advantage of that light is availed of, whilst the passing trade does not contribute a fraction: thus a light depends on local support, and somewhat accounts for the occasional inefficiency and languishing of lights under local management, from the fact that they receive so little encouragement to keep them up, and are so little accountable.

2066. Mr. *Grogan.*] In the case of private lights there is no right to impose a toll?

a toll?—Only from the actual vessels using the port such light belongs to, and which the Harbour Bill provides for. I will instance the case of the light at the entrance of Port Fleetwood. That light is so situated in Morecambe Bay, that whilst it does assist the growing trade of that port, it has become such a boon to the whole of the coasters and pilots who have to avoid the shoals off Walney and the banks off the Ribble, when passing or oppressed from the northward, the Solway Frith, Isle of Man, Belfast, and so on, and up to Lancaster itself, that the masters of vessels almost offer prayers and thanksgiving for that boon; and although the light does not pay its own expenses from its local dues, the Trinity Board have not the power of taking possession of it upon the application of the local parties, and then of exacting a toll upon their own judgment of its being useful, if they thought so, because the light was not first suggested by the general trade.

2066*. *Chairman.*] Then the Trinity Board have no power of erecting a lighthouse and putting a toll upon the general trade, without a petition from the trade?—Without a petition from the trade I understand they have not.

2067. Although in their judgment it may be highly necessary that such a light should be erected?—So I understand it; it was to the astonishment of the Secretary of Lloyd's that the circumstance was mentioned by myself not a month ago.

2068. Would not a recommendation from Lloyd's always have a strong effect with the Trinity Board?—I understand it would not amount to a sufficient authority to lay a toll upon any light; it must be by a petition from the owners and masters. If it were vested in the masters themselves, I am convinced we should see a very different state of lighted coast, even if the masters themselves had to pay a certain proportion towards the lights; the owners having only to pay now, and the owners being generally insured, seems to negative the vital question.

2069. Then I am to gather from you, that in the event of a packet station being formed in the Bristol Channel, you would recommend it not being higher than Brean Down, in preference to a station higher up?—Certainly; we have long come to the conclusion (when I say "we," I think it must prove unanimous with all those considering the points of transferring mails from shore to shore) that under the most ordinary sea circumstances, the more you can diminish the water passage and lay it upon the land, the more certainty of operation is insured.

2069*. Do you think, with the erection of the lights you speak of, Brean Down could be approached at all times of the tide?—Certainly.

2070. With a certain degree of regularity?—Certainly.

2071. Are you acquainted with Brean Down Point?—Perfectly well; I have measured all its features.

2072. Are there any capabilities there for the formation of a harbour?—Yes; first of all, Brean Down is a high rocky promontory; next, it has at its foot a ledge of rocks projecting, which would form the foundation of any pier or breakwater; I say "or breakwater," because if it should be thought that any continuous line from Brean Down to the high-water mark would subject it to silting up, we might have a passage between; but availing ourselves of this ledge of rocks, the materials being at hand, and the deep water which exists around them, there would be ample shelter and space afforded for a packet landing-place.

2073. Would there be facilities for landing at low water?—Certainly, such might be provided upon that projecting ledge of rocks, such as a pier-slip, &c.

2074. In a packet station you contemplate a depôt for coals?—Yes.

2075. Mr. *Grogan.*] Were a pier erected of the form sketched upon the map, would it be likely to silt up?—I think not; I may say certainly not, from the fact that the present ledge of rocks naturally existing do not intercept the silt of the Uphill River, or from the sweep of shore down from Weston-super-Mare, the whole of which is alluvial matter.

2076. *Chairman.*] Do you conceive the erection of such a pier would be very expensive?—The least possible for such a locality.

2077. Mr. *Miles.*] Have you formed any estimate of it?—I have not.

2078. *Chairman.*] Are you aware of the project that is now before Parliament for making floating breakwaters?—I have heard of it.

2079. Do you conceive it is applicable to Brean Down?—I do not conceive the system applicable to any place which has a material rise of tide.

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2080. Mr. *Miles.*] Do you think that hay would be well sheltered from all winds, supposing the pier were made?—I think it would; it depends much upon the curve of the breakwater, and its continuation beyond the low-water rocks.

2081. What wind would it be most exposed to?—The north-east.

2082. *Chairman.*] How far would you carry the pier out?—Three hundred yards from the low-water rocks.

2083. Mr. *Miles.*] Would you have it of solid masonry?—I would only have the part which would he based upon the low-water rocks, which are already uncovered, solid masonry.

2084. Mr. *Vivian.*] Are there stones in the immediate neighbourhood adapted for a breakwater?—There are.

2085. Mr. *Grogan.*] What is the height of the headland of Brean Down?—Three hundred and thirty feet.

2086. Mr. *Miles.*] What do you think that pier could be made for?—I think it could be made for about 70,000 *l.*

2087. Mr. *Grogan.*] Does that include the approaches to the pier for passengers and carriages?—No, nothing whatever but the work outside high-water mark.

2088. Mr. *Vivian.*] To what kind of vessels would that afford protection?—I should say in such a case, it could not be considered an asylum harbour, hut purely a packet station.

2089. You could not consider it a harbour of refuge?—No.

2090. *Chairman.*] Is a harbour of refuge wanted there?—I think a harbour of refuge abreast of the Holms unnecessary.

2091. Mr. *Vivian.*] Then it would not he fair to tax the trade generally for it?—No.

2092. Mr. *Miles.*] There is not much sea above the Holms?—The narrow state of the channel-water, the good holding-ground, and proximity of high shores and the islands (Holms), render it all a roadstead above the Holms.

2093. Mr. *Vivian.*] I think you stated the Mumbles is the most eastern point from whence vessels could depart and arrive at Post-office time; that is your opinion?—That is my opinion.

2094. Will you he good enough to state to the Committee what accommodation they have at present at the Mumbles for vessels, and whether you consider it would be eligible as a packet station?—The roadstead called the Mumbles, as it is now provided, can he merely called a place of safety for vessels so built and so managed as to take the ground upon what is called the Mumbles Flats.

2095. That is as regards coasters?—Yes; as a roadstead, it is so open to the south-eastern and southerly gales, as to render it a very trying anchorage, if not dangerous; but it presents peculiar advantages for such a hreakwater arm as would enclose it from the only winds which affect it. At present, it would not he possible, in the finest weather, with any degree of Post-office or passenger facility which should exist, to land people, to connect them with Swansea, the shore heing chiefly mud, until you come to rocks and rolling stones.

2096. Then, what plan would you recommend for the protection of the Mumbles, in order to render it eligible as a packet station?—A projection; we may call it more a pier than a breakwater, from the Mumbles Head in an east-south-east direction; the materials being abundant might be tram'd off, facilitated by using the intermediate passage between what is now called the Tul, the middle island, afterwards cleared as an opening, to render a constant passage, without rounding the Head, when south-east winds pressed in, for coasters, and would allow the reflux of the ebb-tide to pass through, so as to prevent silting up, which a continuous pier or breakwater might hazard.

2097. To what extent would you recommend that that pier or hreakwater should be carried?—About 500 yards.

2098. What would he the probable expense of such a pier?—About 150,000 *l.* or 160,000 *l.*

2099. Would the comparative cost of a pier at the Mumbles and at Brean Down he so great as you have stated?—I think it would; if we were to consider that having come under that pier, and it heing no longer a communication with the main, there must he a pier also extending out from the main

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to land at, otherwise we entail an apprehension, and a reasonable apprehension, of it all silting up.

2100. What is the rock at the Mumbles?—Abundant limestone.

2101. Does it break in large blocks?—It does.

2102. Then those blocks might be run down by a tram-road and thrown into the sea to form a breakwater?—Certainly.

2103. What accommodation would be afforded to vessels, supposing a pier were erected upon the scale which we now speak of?—You would have from 18 to 24 feet water at low water springs, with a capacity very much in favour of a refuge for all classes and almost unlimited number of vessels; because here we must consider it is an essential point to look for a refuge, and it would be only a half measure to call it a packet station; you might stow a dozen ships, and probably 50 coasters, afloat, under the advantages of that breakwater, if so erected.

2104. Mr. *Miles*.] Would there be any danger of its filling up?—Not in the way we propose to make it; and it is that which would bring about the necessary expense of a distinct landing slip for passengers, for the space from the Mumbles Head to the breakwater continuously would become isolated, as it now is at half tide; and allowing that passage were still left open, it would continue isolated, and would only act as a breakwater and not as a landing means.

2105. Mr. *Vivian*.] Is not the roadstead at present protected by the Mumbles Head from the prevailing winds from the south-west?—It is.

2106. What is the height of the Mumbles Head above the water?—About 110 feet.

2107. And to what wind is the roadstead exposed?—At high water it is exposed to the conflicting sets of tide, and in the two passages between the Mumbles Head and the main, lying as it does in a west-south-west aspect, that is the prevailing wind.

2108. You resided for some time at the Mumbles, I believe?—Yes; in surveying the Channel, it was my rendezvous in the summer.

2109. What number of vessels have you seen under the shelter of the Mumbles Head?—I have numbered 30 there in the winter.

2110. Do not coasting vessels collect there to the number of 200 or 300 in winter?—I have heard so; but even the 30 I saw considered it essential to be in such a position as to take the ground at low water.

2111. Is there not good anchorage ground in deep water outside the Head at present?—Certainly not.

2112. Have not very large vessels rode out very severe gales in the winter there?—They may have rode it out, but it has been entirely upon the good results of their ground tackling; it is as open and as uneasy a roadstead as possible. There is nothing to protect it the whole width of the Bristol Channel, you may say 50 miles, from a gale at south-west, but a small ledge, which lies 27 feet under water, called the White Oyster Ledge; and that being so small in circumference, can scarcely be called a protection, but rather a destroying sea to deeply loaded vessels, which may run over it without striking.

2113. Has there been any instance of a vessel striking upon it?—Not striking, but being poop'd and foundering.

2114. To the westward of the Mumbles Head, I believe it is open sea between that and Ireland?—Yes.

2115. There are no difficulties of navigation between the Mumbles and Ireland?—None; and there are few localities upon that shore which present so much invitation to local improvements as that spot. The Green Grounds which lie inside, if a vessel now misses stays, late upon tide, have proved fatal to several vessels of late years.

2116. Could not that difficulty be removed by placing a buoy upon the Green Grounds?—No; I take for granted when vessels have struck there in a gale of wind it has been under circumstances in which they could not bring up, and in the crowded state as I have heard the Mumbles flat to be in, the vessels are often driven to leeward over the Green Grounds towards Swansea Bar before they can bring up, and under those circumstances, having brought up, they do upon the succeeding ebb-tide strike and bilge.

2117. What is the distance from the Mumbles to the town of Swansea, round the bay?—Five miles.

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2118. There is at present a good turnpike-road between Swansea and the Mumbles?—Excellent.

2119. And also a good line of railway?—There is a tram-way at present.

2120. Which is used to take down coal and bring up limestone?—Yes. In speaking of the White Oyster Ledge, I find myself recording, when these directions were published, "The White Oyster Ledge is a patch of foul ground, on which there are never less than 27 feet; it is, however, extremely dangerous to deep-laden coasters, on account of its heavy breaking sea when the ebb stream is opposed by a strong westerly wind."

2121. Are there not large collieries in the neighbourhood of Swansea?—There are.

2122. And the coal is peculiarly well adapted to steam-packet purposes?—So I have understood, and found it so.

2123. *Chairman.*] You are acquainted with Milford Haven?—Yes; I have surveyed it.

2124. Do you know East Dale Bay?—Yes.

2125. Do you consider a vessel from a port in the Bristol Channel bound to Cork or Waterford could conveniently call in at any hour in East Dale Bay for the purpose of receiving mails and passengers?—Yes, she could conveniently call, as far as its relative position is concerned.

2126. Are there any existing means of embarkation or disembarkation there?—It is very inconvenient at present at low water, or at any time after high water.

2127. Is there any communication with the town of Milford or Haverfordwest?—It is a very tortuous and bad road to Milford, so much so, that most people prefer going up the Haven at the risk of boating to Milford.

2128. Are there any capabilities for making a good road from Haverfordwest?—Yes; the road is already formed, and the material is abundant.

2129. Would it require an expensive pier to land conveniently at all times?—I should think it might be made under 20,000 *l.*

2130. That is merely with reference to packets?—Yes.

2131. Would that be the best position in the Milford Roads for a packet to touch at to take in the mails and passengers?—I conceive it would be the best.

2132. You would prefer Dale Bay to any other point?—Yes.

2133. Mr. *Reade.*] With a communication to Haverfordwest?—Yes.

2134. *Chairman.*] What should you think the delay would be which would be caused upon an average to a vessel bound from Brean Down to Waterford, and also from Brean Down to Cork?—Two hours and a half.

2135. Would the delay be equal in both cases; a vessel bound from Brean Down to Cork, and a vessel bound from Brean Down to Waterford?—It would be greater to Cork of the two.

2136. On account of the greater deviation from her course?—Yes; she shapes her course from St. Ann's Head, immediately round it, to the Smalls for Waterford, and she would have to go more to the southward for Cork; a vessel bound to Waterford will pass close to Lundy Island from the upper part of the Channel.

2137. How near would a vessel going straight from Brean Down to Waterford go to Milford Haven?—I should say not nearer than 12 or 15 miles.

2138. How near would a Cork vessel?—Not nearer than 40 miles.

2139. Would a vessel going to Cork pass to the southward of Lundy?—She would sometimes.

2140. And to Waterford?—To the north, always.

2141. Would it be a greater detention with the prevailing winds to a vessel bound to Cork to call there than the mere distance would give you?—Certainly.

2142. Explain why?—The prevailing winds being westerly, she would diverge so much dead to leeward of the course she would afterwards have to assume or would have gone upon.

2143. And would lose the advantage of running upon the southern coast to the Bristol Channel?—Yes; because she would diverge from the Holms gradually towards Milford Haven.

2144. That would apply to vessels bound both to Waterford and to Cork?—More to a vessel bound to Cork than to Waterford, but certainly to both.

2145. Are you acquainted with the Irish Channel generally?—Yes.

2146. A vessel bound to Cork with the prevailing winds, what point of land

would

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would she endeavour to make?—Barry Island, just to the eastward of Cork entrance.

2147. Is that between Youghal and Cork?—Yes.

2148. They generally make under Youghal?—Yes; but Barry Island is a prominent feature, and after that they make the headlands of Cork.

2149. I need hardly ask, is Cork Harbour a very efficient and safe harbour to approach?—Certainly.

2150. Would there be any difficulty in approaching at all times the harbour of Cork?—For night approach it is not efficient for rounding the spit called the Elbow without a light or cross lights arranged at Haulbowline Island.

2151. Is that an improvement which would be desirable for the general purposes of navigation, or only for vessels tied to a particular time?—Only for vessels obliged to run according to their time.

2152. Are there any difficulties in approaching to Waterford Harbour?—None, considering Waterford always below Dungannon Fort.

2153. Speaking of it as going direct to Waterford Quay?—Certainly, it is a most difficult navigation by night.

2154. What are the difficulties?—A bar half way up the estuary below Dungannon Fort of from nine to 12 feet water only, after that the Channel part passage is exceedingly intricate for nightwork, being but a river navigation.

2155. Have you surveyed the bar yourself?—I have, but not specifically; I have in using it in one of Her Majesty's ships.

2156. Are you prepared to say there is ever so little as nine feet water on the bar at Waterford?—I believe, by very closely defining the leading mark, you might vary it to 12, but it is subject to nine feet upon the slighest yaw.

2157. Are you aware the present steamers go over it at all times of the tide and in all weathers, and up to the town of Waterford at all times of the night?—I am not, I have not visited it for some years.

2158. Mr. *Morgan*.] Do you think there would be any impediment to an iron steamer of 500 tons and 250 horses power going up to Waterford at all times of the tide and weather, as a Post-office packet?—I do not think the draft of water so much the objection as the difficulty of keeping in the deep courses of any river navigation by night.

2159. The draft of water, you think, would not be an objection of itself?—No.

2160. *Chairman*.] Could those difficulties you speak of in the river be easily obviated by the erection of small lights?—I think they might.

2161. Mr. *Murphy*.] Do you know the landing-place at Passage, which is up the river beyond Monk's Town?—Yes.

2162. Now do you apprehend any difficulty in night navigation when once you have passed the entrance of Cork Harbour in going up to land at Passage?—I do, on dark nights, unless arrangements are specifically made for lighting it; and I think it might be so lighted as to overcome those difficulties.

2163. There would not be much difficulty in lighting it so as to overcome that?—No; a few local lights, at the cost of 1,500*l.* each, with 100*l.* a year to keep them up, would effect it: how many, I am not prepared to say.

2164. Do you not conceive, if there were a landing-place similar to those you have on the pier at Liverpool placed upon the Holy Ground, or up by the old Barrack, that would be a guide to the navigation in the night?—Certainly.

2165. Now about the cross lights, you say at Haulbowline, where would that light be placed to carry out your view?—Upon Haulbowline Island, upon such a point of the receding main as I could only point out upon a chart.

2166. Do you know the point where the St. George's steam-packet people work their telegraph now, to intimate that their vessels are arriving?—Yes; I would put it just in that region.

2167. Now with regard to Waterford Harbour, do you think it would be safe, even in the daytime, at dead low water, to pass that bar in a gale of wind, in a vessel drawing anything like the draft of a Post-office steamer?—I think not.

2168. Say even an iron boat, drawing 10½ feet of water, do you think it would be safe to go over that bar at dead low water in 12 feet, with that shift, which

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which may haul you into nine feet in a strong gale of wind?—I think, under such circumstances, a vessel could not run in with safety. The draft of water does not so much affect it as that the ground sea, running near the vessel's draft of water, produces a twisting, fighting sea, and a send, which materially affects the steerage of a steam-vessel.

2169. Mr. *Reade*.] But on account of that being so far up the harbour, would there be much sea there? There is a protection from Craven-head, is there not?—With the ebb-tide, against what wind may get in, and the fetch of the sea, which may roll in; I have seen a great sea there.

2170. At the same time the effect of the wind into the harbour would bring the water in?—Yes; but then you are running it to fine points; a strong wind would either back the tide or take it out.

2171. Mr. *Murphy*.] Do you know the two passages by which, when you pass that bar, and go up to Waterford Quay, you can go to the right or the left?—No, I do not.

2172. Now, with the exception of the difficulty you spoke of, is there any difficulty in entering Cork Harbour at night, when once you see the Roches light?—No; the shoals lie well under water at the entrance, and the shore so bold too, as to promote avoiding them, that I do not apprehend, unless it is very long-heeled ships, such as Her Majesty's frigates, there is any cause for anxiety until you arrive at the point I speak of, the spit, called the Elbow, at the entrance of Cove.

2173. That anchorage is very well buoyed as it is?—Yes, and quite sufficient as it is for daylight.

2174. *Chairman*.] You know the approaches to Liverpool very well?—Yes.

2175. Do you think it properly lighted, as you describe the natural difficulties in the approach to Bristol, up the Channel, are greater than those at Liverpool?—I consider the difficulties of the two ports about equal, taking the light ship at Liverpool as one limit, and the Holms in the other case (the latter certain, the light ship uncertain), or within those limits; however, it is hit or miss very often in both cases.

2176. Mr. *Grogan*.] But you have not so rapid a tide in the Liverpool River?—Yes; there is very little difference in the tide.

2177. Mr. *Vivian*.] With respect to the entrance to Waterford Harbour, what is the distance from the point where the difficulties of the navigation begin, to the town?—By the chart 15 miles.

2178. How long would it require for a steam-packet to make that distance?—It would be two hours against the ebb.

2179. At what hour of the morning do you consider it would be safe for a Post-office packet to approach the entrance of the Waterford River, taking the year round?—It should be between the hours of nine and three.

2180. You say it would be dangerous to navigate that river in the dark?—Yes.

2181. At what hour do you conceive a Post-office packet could navigate that river in safety, taking the year round?—It is always low water at Waterford at spring-tides between half-past 11 and half-past 12; that is the time she ought not to be there.

2182. Then at what hour should you think she might calculate upon getting in, and navigating the river in safety?—At any hour from ten to three, and again from eight to two, in the succeeding tide, always avoiding the hours from four to eight.

2183. Do you think there would be any advantage in a packet getting to Waterford in the dead of the night, or what is the earliest hour in the morning in which you think it would be desirable a packet should reach Waterford?—I think daylight is essential to the navigation up to the town; I can conceive a system of lighting to render it quite practicable to do so at night.

2184. Have you been in Milford Haven since the pier has been formed at Hobb's Point?—I have.

2185. Do you consider that pier well calculated for the Post-office steam-packets?—Not in point of its position with reference to the harbour's mouth, but as a landing-place.

2186. Does it afford protection to steam-packets when they are within the pier?—No; it does not in point of quietude of lying, but its great objection is its position so far from the mouth of the harbour, having to run up eight or nine miles against wind and tide to get to it or from it.

2187. Do

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2187. Do you consider it is desirable for Post-office communication that the mail should be carried as far as possible by land?—Yes; that is an axiom which I believe is generally received.

2188. Then the objection to Hobb's Point being so far up the haven, will apply still stronger to any station in the British Channel above the Mumbles?—Yes.

2189. Mr. *Morgan*.] Do you consider Dale Bay a preferable station to Hobb's Point?—Yes.

2190. Mr. *Miles*.] Suppose a Post-office communication is to be established with Ireland, from what port in the Bristol Channel to the South of Ireland would you recommend?—I should say decidedly, Dale Bay in Milford Haven, for any port to the south of the Smalls or of the Tuskar.

2191. Can you name any port in the South of Ireland which you would recommend it to go to?—Certainly, Waterford and Cork are the two best.

2192. Have you any opinion which is the best, Waterford or Cork?—I think Cork.

2193. Do you like it in a nautical point of view, or as regards Post-office communication?—In a nautical point of view, of course, the distance is materially increased.

2194. What difference would there be in the distance from Dale Bay to Waterford and Dale Bay to Cork?—I should think nearly double, and therefore upon the axiom that the nearest water passage we can make is the best, Waterford would be preferable, seeing that the distance between Waterford and Cork would be made quicker by land than by water.

2195. Mr. *Cory*.] Is Wexford adapted for a station for mail steam-packets?—Certainly not.

2196. Could it be made so at a reasonable expense?—No; I think Carnsore Point does present by artificial means, but very expensive artificial means, a much more eligible point than Wexford, with any improvements that could be made there.

2197. Mr. *Vivian*.] Supposing Dale Bay to be the station, would it not be necessary to make a pier there?—Yes.

2198. What would be the expense of that pier?—£. 30,000.

2199. Lord *Emlyn*.] Are steamers ever detained from the entrance of the harbour up to Hobb's Point, from weather or tide?—I am not aware that they are; I have not witnessed any instance or return to that effect; but I am of trading steamers that used to pass up and down Milford Haven, and I have seen in the time of the former Post-office steamers instances of scarcely stemming it. I have, with a steamer fitted out at Swansea for Her Majesty's service, been obliged to put back; I could not get from Milford to Hobb's Point on the one hand, or from Hobb's Point to Milford on the other, taking an easterly gale in the one case, and a westerly gale in the other.

2200. But you are not aware of any steamers latterly being detained getting from Milford to Hobb's Point?—No; I laid down a plan for the lighting that passage off the dock-yard, and they have gone on, as far as I know, without any difficulty.

2201. Are you aware that a Post-office communication from Hobb's Point to Dale Roads would be almost impracticable at present?—I can only say so by assuming that to be the necessary route, viz. the taking Hobb's Point, and crossing the river abreast for Dale Bay; any delay we can anticipate a steamer would be subjected to in the Haven, would be saved or diminished by the Haverfordwest Road to Dale.

2202. The question is, whether there would not be more delay occasioned by the mail going that intricate road, than by the steamer going into Milford Haven?—I assume the land journey would be effected, and that there would be reasonable, in fact, good facility for embarking at Dale Bay; I should say, that the mail would have no occasion to take any other than a direct line from Haverfordwest down to Dale.

2203. Are you aware there is no road now?—No; I believe a road to exist, but wanting improvement.

2204. Mr. *Vivian*.] What is the average length of the passage from Milford Haven to Waterford?—I think it is 11 hours.

2205. What would it be with steamers of a superior class, assuming the distance to be 90 miles?—It would be 11 hours under any circumstances in a steam-boat, giving her 9½ miles as the average.

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2206. Then at what hour do you think the Post-office should always calculate upon the packet reaching Waterford in the morning?—The tide would be favourable at any time between 10 P. M. and 4 A. M.

2207. But with reference to the navigation in the river, at what hour do you think it desirable that they should calculate upon the packet arriving at Waterford throughout the year?—About eight o'clock.

2208. With regard to the navigation of the river generally?—Four o'clock in the summer, and eight o'clock in the winter.

2209 Then if arrangements could be made, by which a packet was to leave some point in Milford Haven at eight o'clock in the morning, so as to arrive in 11 hours, that is at nine o'clock at night, do you consider the best arrangement for a communication with Ireland could be obtained, or a desirable communication with Ireland would be obtained?—Not to Waterford Quay; I should prefer stopping at Creden Head.

2210. Mr. *Reade.*] There is no harbour there now?—No; I am assuming one would be created.

2211. Do you conceive a harbour could be created at Craven Head?—Yes.

2212. There is no physical difficulty in creating one?—No.

2213. At what cost do you think that could be done?—I should think from 30,000*l.* to 40,000*l.*

2214. Mr. *Vivian.*] If the mail were to leave Milford Haven at nine o'clock in the morning for Waterford, do you conceive that would be as good a communication as could be obtained?—To Craven Head, I do.

2215. *Chairman.*] You consider that with reference to the nautical part of the question, and not with reference to the convenience of the public as regards letters?—Yes.

2216. Mr. *Shaw.*] That is with regard to the southern communication, assuming there ought to be a communication for letters from the South of England to the South of Ireland?—Yes; but I cannot imagine that upon an average any packet could supersede the mail-coach. I cannot conceive a packet to Cork would be in advance of the mail from Waterford to Cork; seven times out of ten she would not succeed in landing her mail at Cork so soon as the mail, *viâ* Waterford, would reach Cork.

2217. That is upon the principle that mails by land are better than by sea?—Yes.

2218. Mr. *Vivian.*] Is there any other arrangement by which the correspondence from South Wales to the South of Ireland would not be entirely excluded than that of a mail by Milford?—If Milford is to be given up, and it is all to take place from the throat of the Channel, the north as well as the south shore would be cut out.

2219. And is there not a very important trade between the ports on the Welch coast and the South of Ireland?—I have always understood so.

2220. Mr. *Morgan.*] Do you consider certainty and regularity in the transmission of letters of essential importance in Post-office communication?—Most certainly.

2221. Would there be more likely to be irregularity and delays arising from the packets going out from any point in the Bristol Channel and calling at Dale, than from packets sailing direct from Dale and taking up the letters at Dale Point?—Yes; it has already been shown that the distance would occupy time amounting to two or three hours; but it is difficult to say, when once a vessel diverges from her course and attempts by that to call or touch at a port, to what extent that delay may be increased.

2222. Mr. *Grogan.*] Supposing it was thought right that the Post-office communication to the South of England should start from Brean Down, would it be a preferable place for the packets to take up Welch letters at the Mumbles or at Dale Bay?—By stopping at the Mumbles it would be running some risk in thick weather of clearing the Scarweathers Sands as well as the Nash; she would have to diverge across.

2223. It appears some expense must be incurred in either harbour you mention; taking all circumstances into consideration, where would be the best place at which the money should be laid out; which point would you touch at in Wales for the purpose of Post-office communication?—The expense of Dale Bay would be about one-third of what it would be at the Mumbles; that perhaps in one point of view would carry the question, but as the Mumbles would be

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be something beyond a Post-office station, a place of refuge, and would receive a cheerful toll from vessels passing, it may be considered preferable, looking upon it as a refuge; but on the other hand if they touch at the Mumbles, everything to the westward would be cut out from that intercourse, unless the mail were to recede back in some way to the Mumbles; I can conceive that possible, instead of the packet starting direct from Milford, and everything being on its way through Wales, gathering as it came, the mail from that part of Pembrokeshire should recede into Carmarthenshire, and get to the point of the Mumbles.

2224. And Swansea is a place of that commercial importance that it would be a very good centre to take the letters to?—Yes; and a point of such importance as a Post-office station, if combined with a refuge, would be doubly satisfactory.

2225. Mr. *Vivian.*] What would be the great advantage as a packet station of Brean Down over the Mumbles; why would any packet establishment be required at Brean Down?—I cannot conceive that a packet establishment would be central at Brean Down, inasmuch as letters by the mail-coach without a railroad get up the Channel and down the Channel faster than a steamer can do. If a railroad is to bring the mail to Brean Down, and then it is to embark and go straight to Ireland, it has great advantages; but if, on the other hand, the mail is to be brought down upon the south shore from Monmouthshire and Glamorganshire, I anticipate the mail-coach will have arrived at Swansea and the bags been transferred to the Mumbles before the mail from London could reach Bristol, or about the same time as the vessel which might have left Brean Down would reach the point where the mails might have separated upon the road down to Bristol.

2226. Would there not be this additional advantage, that in case of their going to the Mumbles they would take the correspondence from Newport, Cardiff, and all the intermediate places?—Certainly. I should apprehend, in case of a Brean Down station being established and Milford discontinued, the plan would be this: that whilst the mails from London were getting to Brean Down, the mails from Monmouthshire, Glamorganshire, and those parts, would have to cross by some steam means to Brean Down, and there be put on board.

2227. To cross from Cardiff to Uphill or Brean Down, would it not require a new pier to be constructed at the mouth of the Cardiff river; at Pennarth or some other point?—Yes.

2228. Do you conceive the navigation from Cardiff to Uphill could be conducted with the regularity which it can be at the Aust Ferry, it being at one place eleven miles and at another one mile and a half across?—I think it could be, in point of time; the water at the New Passsge does, unfortunately, confine it almost to a boating operation.

2229. Mr. *Morgan.*] You are acquainted with the Old and New Passages?—Yes; they tried steam, but the shallows are so great that they returned to the old boats; it is simply boating; they have had a small steamer there.

2230. Mr. *Vivian.*] Have you been there lately?—Not within the last two years.

2231. Have you been there since the iron steamer has been at work?—No; but when the wooden steamer was there they could not cross. If they can, and indeed I understand they do work the steamer across, there is no doubt the Old Passage is to be effected with much greater regularity than the New Passage, or from Cardiff to Uphill.

2232. Mr. *Morgan.*] You would prefer crossing the river at the Old Passage to crossing at the New Passage?—Yes; from Aust to Beachley.

2233. You think there is less danger of irregularity in crossing the Old Passage than in crossing the New Passage?—Yes.

2234. The currents at the New Passage are very strong, are they not?—Yes.

2235. There is a cross current also?—Yes.

2236. Would you have to contend with that cross current in passing?—Yes.

2237. There are the English stones and the Welch stones also?—Yes.

2238. There is also an immense flow of water with the current which comes from the Wye?—Yes.

2239. And increasing the strength of the current considerably more than at the Old Passage?—Yes; because by landing at Beachley you land above the embouchure of the Wye.

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2240. *Chairman.*] How long do you think a proper description of steam-packets would take crossing from Cardiff to Brean Down?—An hour.

2241. Then if you allowed three hours, can you conceive any weather when a vessel could not get across?—I can scarcely conceive any weather in which an efficient steamer could not get across, there being a safe point of departure on the one side, and of arrival at the other.

2242. Lord *Emlyn.*] At any time of the tide?—Yes; a landing place being made on each side, which at Cardiff would be the most troublesome; Cardiff, of course, would not be the point.

2243. Mr. *Vivian.*] What is the distance from Swansea to Cardiff by land?—Forty-five miles.

2244. Then in the event of there being a packet established from Cardiff to Braen Down, the letters from Swansea to the South of Ireland would have to be sent to Cardiff, and then across the Channel to Brean Down, and then down the Channel again, opposite Swansea, occasioning a delay of at least 12 hours?—It would double the distance, because the packet could not come down under the circumstances, and the detention there must be for the purpose of receiving the mails at a greater speed than the one you had sent across.

2245. *Chairman.*] Am I to understand you as saying that the letters from Bristol could not get opposite to Milford Haven, by means of a railroad from Bristol to Brean Down, and from thence by a steamer such as has been described, quicker than they can possibly do by the mail-coach through South Wales?—I think the average would be a loss of time by the Brean Down departure, but there would be instances where it would be probably three hours in advance of the mail getting down to the Mumbles, or getting down to Milford. If we take fine weather, and the ebb-tide at starting, the vessel will make the whole distance quicker, extra urged as she would be, to almost half her own rate; but, on the other hand, taking the prevailing winds, and the flood tide, she would probably be in some cases 12 hours behind. We had a steamer missing four or five days this last winter, bound from Bristol to Waterford.

2246. What steamer was that?—I think she was called the Shamrock. That vessel took shelter in Caldy Roads; and when she was supposed to be on her passage across she was still in the Channel, and could not pass.

2247. Do you know her size and power?—She is not a Post-office vessel. I am putting that case to show how far a vessel may be thoroughly defeated, and of course we may measure the retardation of another by that.

2248. Mr. *Vivian.*] In the event of the packet arriving at Milford before the mail arrived there, would not the packet have to wait for the arrival of the mail unless a second mail were established through South Wales, to convey the Irish letters alone?—Yes.

2249. There must be a mail through South Wales to convey the London letters for the general line; and therefore any packet calling at Milford would have to wait for the arrival of that mail, unless a second mail were established to convey the Irish letters?—That would be an inland Post-office arrangement; the mail-coaches are not supposed to vary.

2250. The packet could not start until the mail arrived?—

2251. Mr. *Miles.*] Supposing any port is to be chosen for the departure of the mails higher up the Bristol Channel than Dale Bay, what place should you recommend, without reference to the side; Brean Down, or Portishead, or the Mumbles, or anywhere higher up the Channel?—Next to Dale Bay, or next to Milford Haven in fact, the Mumbles presents itself.

2252. Would you recommend the Government to spend a large sum of money in forming a pier for steam-packets at the Mumbles, when there is a chance of having a pier to start from at all times of the tide at Portishead, made by private enterprise?—That is a question which involves the economy of the thing in a financial point, more than the facilities of navigation.

2253. Would you recommend the Government, under those circumstances, when you had a pier at Portishead to start from at all times of the tide, to spend 150,000 *l.* more to make a pier lower down, when it would not make more than half an hour's difference in the passage?—I do not conceive a party making a pier at Portishead diminishes the natural difficulties of the navigation.

2254. You are aware steamers can go up and down at all times of the tide?—I am not.

2255. That the Great Western has sailed at the lowest state of tide down?—No, I was not aware that she had sailed at the lowest state of tide at night.

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If you can possibly make the starting and arriving hours in daylight, all difficulties vanish; the danger is in the possibility of falling into dark hours.

2256. Mr. *Vivian*.] Do you think Government would contribute towards the construction of a pier at the Mumbles, considering it would be useful for general purposes as a harbour of refuge?—I cannot say.

2257. *Chairman*.] What average speed would you give a powerful steamer going down the Bristol Channel?—Nine miles.

2258. Mr. *Reade*.] Would that have reference to crossing the Irish Channel as well?—Yes; always excepting those gales, which would reduce her to half her rate. The reason why I average her rate to be nine miles in the Bristol Channel as well as crossing the Irish Channel is, that she would have the disadvantage as well as advantage of the tide in the latter case.

2259. Have you anything to add to what you stated with respect to the screw-pile lighthouse?—I beg to hand in an elevation view of the lighthouse as erected on seven of Mitchell's screw-piles, at the entrance of the sea reach of Wyre, leading into Port Fleetwood.

[*The same was handed in.*]

Vide Plan, No. 1.

The following is a description and specification of the lighthouse: It was my study, when planning this navigation, to identify the remotest spit of bank turning into it, without subjecting the mariner to the treacherous, and at best but partially lighted agent, a light-vessel. Messrs. Alexander Mitchell & Son, of Belfast, readily took up the proposition, and the Board of directors of the railway and harbour project as readily adopted the application of Mitchell's ingenious mooring screw to the insertion and basing of piles or pillars in sub-marine foundation. I had given much trouble to Messrs. Mitchell when unavailingly submitting their plans and specifications to the Liverpool Dock Committee (4th October 1838) of so perfect a mode of establishing lights out on the very banks of a navigation, whereby the power and object of a lighthouse is enhanced by proximity with the anxious observer from sea. In fact, a lighthouse can be thus erected upon any under-water spit, as indifferent, to a 30 feet rise of tide and channel surge, whilst sending forth its light, of the same character and stability as if on the main land; thereby throwing it more intensely and effectively on the region required, especially where shoals outlie the main to any extent. Its time in erection the shortest possible, and of so portable a structure that it may be removed, if local changes require, to another site in a month. Wherefore, then, should not every spit now guarded by a light-vessel, with her unavoidably inferior order of lights, rendered more so in a gale of wind by pitching, floundering about, and ever and anon submersed in the trough of sea-spray and spoon-drift, and that too when most wanted, and often at the very crisis of exigency to all around, breaking adrift; wherefore not supersede them by so purpose-like a fabric? Let those who take interest, but who doubt, or cannot conceive the matter, go to Fleetwood-mount Observatory, commanding the mouth of Wyre, and watch the effects of a westerly gale upon the first of its kind (not associating the effects of a seaway upon the Eddystone or Bell Rock, for the screw-piled pillars do not oppose the sea); a structure destined to save many a gallant bark, that would otherwise drive, unbeaconed and unwarned, upon the sands of Morecambe Bay, and I doubt not will give rise to a general adoption, whilst rendering it imperative on local guardians to a navigation to establish refuges for the cast-away mariner; since by this method the practicability is manifested. Indeed this submarine method of commanding foundation and hold-fast, so ingeniously contrived by Messrs. Mitchell, combines the vital essentials to the seaman's hope, of warning, guiding, succouring, and when in port securing. The figure of this first screw-pile lighthouse in the United Kingdom—in the world, I may say—is shown on the local chart, and presents to the eye a well-proportioned group of columns rising out of the sea in the intervening and overlapping order that hexagonal or six-angled figures produce, according to the separate angles you may be opposite to; a systematic interlacing of tension-rods renders the fabric sufficiently opaque, even below the platform; but above the platform, of 27 feet diameter, you have a six-angled dwelling house, of 20 feet diameter by 9 feet high, in the

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centre of which rises the twelve-sided lantern, with Chinese roof, of 10 feet in diameter. Thus you have a figure of 46 feet spread at the base contracting at the platform balcony to 27 feet, and elevated 45 above low-water level, surmounted, as stated, by a bulky, yet pleasing and effective superstructure, comprising a comfortable residence for the light-keepers, whilst affording you a steady, bright, uniform light, 45 feet above mean sea level, ranging over an eight-mile horizon, visible ten miles from a coaster's deck, and freed from those breaks of brilliancy attending the offing passage from reflector to reflector by being fitted with a light of dioptric order. Foggy periods are provided for by a self-acting deep-sounding bell tolling three strokes of five-second intervals at one-minute pauses. The foundation of the building is formed of seven screw-piles, six of which are the angles of a hexagon about 46 feet in diameter, and the seventh pile stands in the centre of the figure. The heads of all the outer piles have an inclination inwards, by which the diameter of the framework connecting the top of the columns, and upon which the house stands, is contracted to about 27 feet. Each screw-pile is formed of a malleable iron shaft, 15 feet long and 5 inches diameter, hove into the ground by clamp capstans from floating stages or pontoons.

On each pile a three-foot screw is firmly keyed near its lower extremity, beneath which is placed a small drill or opening bit.

At the upper end of the shaft is a screw of 18 inches long and 2 inches diameter for drawing down and screwing the wooden column to the iron pile, which latter stands about 5 feet out of the ground.

The columns are thus prepared:—Seven logs of Baltic timber are selected of the largest and best quality; the centre one is 56 feet in length, and all the others are 46 feet. The pedestals rise about a third of their height, and the remainder of the shafts are rounded, both for appearance and as lessening any vibration in the action of the sea. An opening in the lower end of each column is then made, of 5 inches diameter and to the depth of about 8 feet, by boring in the manner of a water-pipe; strong iron hoops are then driven upon it hot, the first about 8 feet up, the second about 4 feet, and the third at its lower extremity.

This hooping will give to the column greater strength than it originally possessed, especially as the wood removed by boring is the weakest in the tree, and adds scarcely anything to its actual strength.

The column being raised perpendicularly above the iron pile, the end of the latter is introduced into the opening prepared for it, and which has been made to fit accurately upon it. When the top of the pile has reached the end of the cavity (screwing on by capstan), the foot of the column will be inserted in the bank about three feet. The wood, when wet, will clasp firmly on the iron; but, as an additional security, the internal screw attaches the two together.

The framing upon which the house stands is firmly secured round the centre column, and to the heads of the outer ones, by means of cast-iron capitals let down over the heads of the columns, the capitals being cast hollow for that purpose; to the abacus of these the top framing is secured with strong bolts passing down through the wood and iron, having nuts on the under side, all boring or cutting into the main support of the building being thus avoided, and the adjacent parts of the framing are bound together by wrought-iron straps and knees. The beams which radiate from the centre to the heads of the outer columns are 12 inches deep by 7 inches wide, and those which connect the head of the outer columns 12 inches by 4.

To give lateral strength to the building to resist the effect of heavy bodies drifting against it, 24 angle braces, from round iron of 1 ½ inch diameter, are applied, as shown in the plan, by which a resisting power, equal at least to 350 tons, is presented in every direction; these braces are secured at the top to trusses cast with the capitals, and beneath to strong wrought-iron bands with projecting bolt-holes; by these means boring into the columns is again avoided; the braces are keyed up at their crossing.

The light-keeper's house, which is hexagonal, is in diameter, from angle to angle, 22 feet, and 9 feet in height.

The centre column rises to the base of the lantern, which with the roof it assists to support, giving great additional stability to the whole structure.

The corner posts of houses are 7 inches by 6; all remaining studs 6 inches by

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by 4; beams of roof 9 inches by 5; and all outside planking, together with floor and roof of house, is 2 inches thick.

The house has an outside door and three windows, and is divided into two apartments, one having a fire-place, and the floor tiled; the walls of both apartments are lathed and stuccoed. The lantern, which is 12-sided, is 10 feet in diameter, and in height, to the top of the windows, 8 feet, by which the lights are raised above the highest spring-tide level about 31 feet, or 44 ½ above half-tide level.

The lights (in this case of dioptric order) show throughout the periphery, and the roof is covered with strong sheet copper (a lightning repeller and conductor of course). The light-keeper's house is covered with sheet-lead, and a light iron railing is carried round the top of the building, and the platform on which it stands.

Access to the latter is effected by a Jacob's ladder of wrought iron, secured to one of the columns, and to the lantern by a winding-stair within the house. A semaphore is worked from the lower balcony.

2260. Have you a statement of the actual cost and maintenance of the lighthouse?—Yes; it is as follows:

	£.	s.	d.	£.	s.	d.
The whole material and wages of artificers required to form the structure, as contracted for and executed by Messrs. Mitchell, patentees of the screw moorings - -	1,900	-	-			
The expenses of local assistance, comprising pontoons, steamer, boats' crew, and labourers	310	-	-			
Actual Cost of Fabric - - -				2,210	-	-
The lantern, comprising a plate-glass sided and copper-roofed chamber, with ventilators, fitted with a dioptric light of second order, lens, and concentric lamp - -	699	-	-			
A self-acting alarum for foggy weather -	180	-	-			
Oil tanks, copper measures, and starting stock of oil, all fitted and supplied by Messrs. Robinson & Wilkins, Long Acre	285	-	-			
				1,164	-	-
Total Cost of Lighthouse on first night of lighting - £.				3,374	-	-

The annual expense depends on climate and distance from shore.

	£.	s.	d.	£.	s.	d.
The above lighthouse at two miles off shore, presents under the head of three light-keepers (at 90*l.*, 80*l.*, and 70*l.*), two always in charge - - - - -	240	-	-			
Oil, cleaning, materials, painting and pitching, with tendering supplies - - -	248	-	-			
				488	-	-

Jovis, 5° *die Maii*, 1842.

MEMBERS PRESENT.

Mr. Grogan.
Mr. W. Johnson.
Mr. Morgan.
Mr. Reade.
Mr. Shaw.
Mr. Vivian.

LORD INGESTRE IN THE CHAIR.

Captain *John Edwards*, called in; and Examined.

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1881. Mr. *Vivian*.] YOU are Harbour-master at the Port of Swansea?—Yes.

1882. How long have you held that situation?—About 22 months.

1883. What was your occupation previously to your being appointed harbour-master at Swansea?—I commanded the Mountaineer steamer from Swansea to Liverpool.

1884. How long were you in the command of the Mountaineer steamer?—Nearly 6 years.

1885. Previously to your taking the command of the Mountaineer steamer, had you the charge of any other steamer out of Swansea?—I had.

1886. What was that steamer?—She was called the Bristol.

1887. Where did she trade to?—From Swansea to Bristol.

1888. How long were you in command of the Bristol?—About five years and a half.

1889. And previously to your having charge of the Bristol steamer, did you trade from the port of Swansea in coasting vessels?—I did.

1890. How long have you been at sea altogether?—Thirty-five or 36 years.

1891. And during that time you have chiefly navigated the Bristol and Irish Channels?—I have.

1892. Now will you state to the Committee your opinion upon the several places which have been under consideration as being adapted for a packet station to communicate with the South of Ireland; what is your opinion of Milford Haven as a packet station?—Milford Haven is a very good harbour of itself, but the approach to it is objectionable, in consequence of the strong tides and the islands on the outside, particularly in thick weather. I have known a detention caused to vessels entering it, but when you are in there is no better harbour that I know of.

1893. Then you consider that there is some difficulty of ingress and egress?—Yes.

1894. But within the harbour there is good protection for steamers, and great depth of water?—There is.

1895. And there is great depth of water at the entrance, is there not?—Yes; the only objection is the strong tides off the harbour's mouth, round the islands, in thick weather.

1896. What part of Milford Haven do you think is best adapted for a steam-packet station?—The safest place, and the shortest distance, would be Hobson Pill.

1897. Mr. *Reade*.] Is that abreast of Milford?—That is abreast of Milford town.

1898. Is it opposite the quarantine station?—A little above.

1899. Would it not interfere with the quarantine station?—No.

1900. Mr. *Vivian*.] What is the accommodation at Hobson Pill for steamers?—There is no accommodation for landing; no pier, only a small slip, but it is the old station where they landed formerly in boats before they removed to Pater.

1901. Why did they remove to Pater?—It was, I believe, in consequence of not being able to get ground to build the pier upon at Hobson Pill; it belonged to some lady there, and she would not grant Government a lease of the land for building a pier, as I was informed.

1902. Mr. *Reade*.] Is that upon the same side of the harbour as Milford town?—It is.

1903. Mr.

1903. Mr. *Vivian.*] Are you acquainted with Hobb's Point?—I am.

1904. Do you consider the accommodation there good for packets?—Yes, I do; but upon the point the pier is built I do not think it is as safe as it might be for packets to lie alongside of, being exposed to the whole drift of the harbour; there is a great sea there. I have known packets obliged to leave the pier, they could not lay alongside of it; in fact, I have been in that position myself in taking cargoes there; I could not lay alongside of it.

1905. While you were in command of the Mountaineer I believe you used to call at Milford to take in goods and passengers?—I did.

1906. And you are well acquainted with the conveniences which different parts of the harbour present?—Yes, I am; I called for nearly six years in and out both ways.

1907. Is there any difficulty of navigation in running up the mouth of the harbour to Hobb's Point?—Yes, there is; there are rocks below, where there are two light-vessels placed.

1908. Have you ever experienced any difficulty in running up in the night?—I knew a steamer, commanded by Captain Evans, that could not get to sea in consequence of thick weather; but we managed in the Mountaineer, lying off HobsonPill, to get to sea, being more in the fair way to get to sea.

1909. Are you acquainted with Dale Bay?—I am.

1910. Is there any convenience at Dale Bay for steam-packets?—I should say it would not be the place I would recommend to attempt to land at, for there is so much ground-swell upon that shore in the winter months that there is no chance of a boat landing.

1911. Is there any landing-place at present at Dale Bay?—None whatever.

1912. Are there any other inconveniences besides the ground-swell?—The anchorage is bad; so much so, that when once the ground-tackling gives way, it will get choked with ore-weed, so that it can never take hold again; and there is great risk of ships getting on shore.

1913. What is your opinion, in a nautical point of view, of the Mumbles, as a station for Post-office packets to communicate with Ireland?—It would not do in its present state.

1914. What would be required to make it eligible for that purpose?—I should say a floating breakwater would be most eligible for it.

1915. Has it been surveyed with the view of placing a floating breakwater there?—I cannot say for certain, but I believe it has been; there was a representative of Captain Taylor down at Swansea some time ago, and some of our merchants offered to take up shares as a company to establish a breakwater, so as to get about five or six sections of about 90 feet in length each, to be laid down from south-east to east, with a view of charging so much per ton for sheltering wind-bound ships.

1916. Have you ever seen a breakwater of that description?—I have not; but I have seen sections of the plan, and heard it spoken well of; that it is likely to answer. The advantage of such a breakwater is, that there would be less danger of filling up.

1917. Do you think it would resist the action of the sea?—I have no doubt of it.

1918. And that it would still the ground-swell?—I think it would.

1919. And render the layers safe within?—It would render the layers safe for sailing vessels; but there must be a wooden pier erected on the inside, so that the mail boats should have water to go alongside at low water.

1920. The sections you spoke of depend entirely upon the anchors and cables by which they are moored, do they not?—They do.

1921. Is there good anchorage ground at the Mumbles?—None better; we have had ships lying there this winter drawing about 20 feet of water, and carrying about 800 tons, and they have rode quite safe; I do not recollect in the outer roadstead, in the 35 or 36 years that I have been to sea, of any ship driving from them.

1922. From what quarters is the roadstead itself protected?—The inner roadstead is protected from the south-s-west to east.

1923. And to what points is it open?—To all the others partially. I should say nothing would injure at the Mumbles except from south-s-east to south-s-west.

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1924. From what quarters are the heaviest gales in the Bristol Channel?—South-west generally, and westerly.

1925. Is the roadstead open to any extent to the eastward?—The outer roadstead is open, but what we term the inner roadstead is sheltered as far to the southward as south-s-east.

1926. With respect to Brean Down, are you acquainted with that place?—I am not sufficiently acquainted with Brean Down to be able to speak of the localities of the place, but I have been to an anchor at various times inside the steep Holms, and there is tolerably good water pretty near to Brean Down.

1927. Do you know the situation of Brean Down; is the point exposed?—It is.

1928. What would be required at Brean Down to render it fit for a packet station?—A stone breakwater. I do not know of anything else.

1929. Is there any accommodation there at present for steam-packets?—None whatever.

1930. Are you acquainted with the spot near Portishead where it is proposed to erect a breakwater?—I do not know where it is proposed to erect a breakwater; I know Portishead very well.

1931. Do you consider, if a breakwater were constructed off the Head, it would afford protection to steamers?—It would.

1932. Are there any difficulties in the navigation between Portishead and the mouth of the Bristol Channel?—There are serious ones.

1933. Will you state to the Committee what those difficulties are; supposing you were coming up the Bristol Channel from sea to Kingroad, and considering that as the Post-office packets must start at all times of the tide, they must take the low-water as well as high-water?—The Channel is so narrow that it would not be safe for those vessels to navigate by night; the Scarweathers and the Nash Sands are not far distant from the Nash Point. I believe 12 years ago there was a steamer called the Frolic lost on the Nash Sands; I was coming down the same tide in the Bristol, and if the captain's watch stopped at the time the ship got on shore, I must have passed 27 minutes or half an hour from the time the ship struck; it was very thick, and blowing hard to the westward.

1934. Is that part of the Bristol Channel subject to fogs?—From the Nash Point up I have found it more so than to the westward; I have been part of three days in company with some of the Irish boats which could not find their way into Bristol.

1935. Do the steam-boats out of Bristol calculate always upon starting from Bristol at high-water?—They do.

1936. Do you consider it would be safe to navigate the Bristol Channel at low-water by night?—I do not.

1937. Are you speaking of above the Holms?—Between the Holms and Portishead.

1938. Supposing the steamers were of a great power?—No; with vessels of 500 tons, drawing 11 or 12 feet of water.

1939. Do you think it would be safe for steam-packets to start from Portishead at 2 or 3 o'clock in the morning, or to arrive there in the dead of the night, and navigate the Channel at all times of the tide?—I do not; I should not like to be in command of a boat of the class spoken of, to do so at low-water by night.

1940. *Chairman.*] On the supposition of a harbour being made at Brean Down, would you have the same difficulties?—No, I should not.

1941. Do you think in that case you could at all times of the tide leave and approach Brean Down?—There are sands in the way to the westward, called the Culvers, and there is a very strong set of tide across them; so much so that I think there would be some risk for a steamer either to go into Brean Down, or to leave.

1942. If there were a light upon the Culvers, would that assist your getting to Brean Down?—It would.

1943. And would be useful to the navigation generally?—It would.

1944. Mr. *Vivian.*] It has been suggested that if steamers were to start from Portishead or Brean Down, they should call at Milford or Dale Bay for the Welsh mail-bags; do you consider that practicable?—It certainly could be done, but it would be attended with a vast loss of time, I should think.

1945. Mr. *Reade.*] Taking Dale Bay, what time do you calculate would be lost

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lost from Brean Down to Waterford?—By going to Waterford it would take a vessel off her course in time from three and a half to four hours; and going to Cork, I should say, with the wind acting to the southward and westward, about five and a half hours, as she would be always to the southward of her course three or four miles, with the wind acting upon those points.

1946. Mr. *Vivian.*] What would be the delay in addition of calling at Hobson Pill instead of in Dale Road?—Calling at Hobson Pill would make about an additional hour, in and out.

1947. That would be four and a half hours going to Waterford?—Yes, and about six and a half hours to Cork.

1948. Supposing they were to run up to Hobb's Point to take in the bags, what difference would that make?—That would be about three-quarters of an hour each way, making about one hour and a half or an hour and three-quarters additional. That is the average time, taking the tide against and the tide for, with strong winds, We could never get in and out of Milford off Hobson Pill, in the Mountaineer, in less than two hours and a half.

1949. In the long run, which do you think would get to Hobb's Point first, the packet starting from Portishead or the mail running from Bristol by the present route, taking 17 hours from Bristol to Hobb's Point?—A steam-packet of the class spoken of, would be at Hobb's Point upon the average in 13 hours.

1950. What time would you give a steam-packet of 500 tons, and 250 horses' power, with no cargo, from Portishead to Hobb's Point, in fine weather?—She would go down in somewhere about nine hours, or nine hours and a half, in fine weather.

1951. And in bad weather?—In bad weather I have known times when they could not come down at all; and I have been in company with some of the Liverpool mail-boats when they have been obliged to put into Redwharf Bay for shelter; and I have been in company with some Bristol boats 12 years ago, coming from Portishead to the Holms; and at one time three of those vessels refused their wheels, meaning they would not steer, falling off broadside to wind and sea, and coming broadside on, with nothing to bring them down but the strength of the tide. Those three vessels and the one I commanded were obliged to put into Pennarth.

1952. *Chairman.*] Those were heavily-laden vessels?—No, they had a very trifling cargo in those days, to either Cork, Dublin, or Waterford; one was the Killarney, being then on her third or fourth voyage.

1953. Mr. *Reade.*] Was that singularly bad weather?—It blew hard, but I have been in worse weather before and since.

1954. Mr. *Vivian.*] Do you think the passage could be effected from Milford to Ireland in heavy weather when it could not be effected from Brean Down?—I do, as far as the distance goes, but nothing else; because you have got to compete with the worst of the passage from Milford to Waterford, for sea.

1955. Do you know Waterford Harbour?—Yes.

1956. What would be the average passage from Brean Down to Waterford with a steamer of the description spoken of?—I should say, from Brean Down to Waterford the average passage would be 20 hours with that class of boats.

1957. Now, taking Portishead; what would be the average passage from Portishead to Waterford?—I do not consider it is practicable at all for a steamer of any draught of water, say 10 or 12 feet, to leave Portishead at night.

1958. What would be the average length of passage from Portishead to Waterford?—I should think somewhere about 20½ hours or 21 hours; it would make a difference of an hour and a half.

1959. What would be the draught of water of an iron steamer of 500 tons burthen?—From 8½ to 9 feet; boats of the same class, built of wood, would draw from 10½ to 11 feet.

1960. Mr. *Shaw.*] Do you know what the draught of water of the Prince and Princess, and that class of vessels at Liverpool, is?—I should think from 10½ to 11 feet.

1961. Mr. *Grogan.*] Should you consider that would be a fair average for the class of boats we are speaking of?—Yes, I should think it would if built of wood; the draft of water of an iron steamer is much less than a wooden one; I should say somewhere about nine feet for an iron boat, and about 11 feet for a wooden one, making a difference of two feet, supposing both boats to be of equal size.

1962. Mr.

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1962. Mr. *Shaw.*] Do you know what the Merlin and Medusa, and that class of boats plying at Liverpool, draw?—I think they draw more water than the Prince and Princess.

1963. *Chairman.*] Do you conceive that an iron steamer capable of meeting the seas in that part of the Channel could be built to draw nine feet of water?—I do.

1964. Mr. *Vivian.*] Would there be any difficulty in navigating the Waterford River in any state of the tide with a steamer of that description, drawing nine feet of water?—I should think not; the bar, if I bear in mind well, is somewhere about two fathoms; the lowest water I recollect finding is from 12 to 13 feet, and that was at a very low veer.

1965. What do you consider would be the average passage from Brean Down to Cork?—It would be somewhere about 24 or 25 hours; I should say about 25 hours.

1966. Under favourable circumstances, what would be the probable length of the passage?—Under favourable circumstances, I should say it would be from 19 ½ to 20 hours.

1967. And, under the same circumstances, you would get to Waterford in 15 hours?—Yes, about 15 or 16 hours from Brean Down.

1968. Mr. *Reade.*] And you would put on two hours from Portishead?—An hour, under the most favourable circumstances.

1969. *Chairman.*] What average would you allow a steamer of this description from the chops of the Bristol Channel to Waterford or to Cork, taking the risk of all weather; what should you say, one time with another, she would steam?—I should think about eight miles an hour.

1970. And from Brean Down to the chops of the Bristol Channel?—She would average about the same.

1971. Would she not steam faster in the Channel than at sea?—No, not with the wind westerly, blowing hard.

1972. Now, in the open sea of the Irish Channel, what do you think would be the least she could be brought down to, in steaming with a heavy wind and sea?—I have known times when she could not go ahead at all.

1973. Do you think that would be a frequent occurrence with a vessel of this description?—No, I do not.

1974. Mr. *Shaw.*] I believe that very seldom happens to vessels such as the Prince and Princess, upon the Liverpool station?—I have known vessels, such as the Liverpool mail boats, put into Redwharf Bay for shelter; and I have known them to beat over to quarantine ground and not to go to sea for the tide; I have also known them to put into the Menai Straits.

1975. Mr. *Grogan.*] Are you speaking of the Prince and Princess now?—I am speaking of that class of vessels.

1976. Have you ever had an opportunity of steaming in company with them, to know their power?—I have been in company with them frequently.

1977. Am I to understand that you are speaking of those vessels, the Prince and Princess, or of mail boats generally?—Of the Liverpool mail boats generally.

1978. *Chairman.*] Do you conceive that the Bristol Channel generally, as high as Brean Down, is as accessible in all weathers as the approaches to Liverpool?—I do; with the exception that we get a little more fog in the Bristol Channel.

1979. I confine the question to Brean Down?—My opinion is, that the Bristol Channel is as accessible, with the exception that we get more thick weather in the Bristol Channel than we do at Liverpool; I mean at Scarweathers up.

1980. Which would you rather have, the command of a vessel bound to enter Liverpool at all times, or one bound to enter Brean Down at all times, coming from Ireland?—I should say, I should prefer going to Brean Down. I have been in the worst gale that ever blew. I was out in the January 1839 gale eight hours, in the height of it, and took the crew out of one of the packet ships (the St. Andrew) that was wrecked on the Liverpool Banks, and I must say I should not like to be obliged to run for that port in such weather; I should give the preference to Brean Down. At this time the light ship broke adrift, and the buoys were washed away.

1981. Mr.

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1981. Mr. *Grogan.*] Do you mean you should prefer going into Brean Down under all circumstances, to going into Liverpool harbour?—I should, with the exception, as I said before, of fogs.

1982. You know Liverpool Harbour very well?—Yes.

1983. Does your objection to Liverpool Harbour, in comparison with Brean Down, arise from the want of water?—It does; that channel cannot be made out of a dark night.

1984. It is an uncertain channel?—Yes, so far uncertain that if you cannot make the lights there is great danger of the ship getting ashore and wrecked.

1985. Do the tides come into your calculation at all?—I do not think so much of the tides going into Liverpool, more than the rise and the fall of the tides.

1986. You are obliged to use the lead in going into Liverpool at all times?—That depends upon the state of the tide, and the draught of the water the ship draws; I have gone in and out without keeping the lead going at all, and at other times I have kept the lead going; that was when the water was low.

1987. What water did your boat draw?—12½ to 13 feet.

1988. Could she enter Liverpool at all times?—Not at all times; I have been obliged to lie off and on, to wait for the flow of the tide.

1989. What distance was that from the pier head?—17 or 18 miles.

1990. Had you any shelter of any kind?—None whatever, I was outside the bar.

1991. Is that inside the lighthouse?—No; it is inside the Bell buoy, that is going into the new channel.

1992. Can you say what is the breadth of the channel there?—At low water it is very narrow; I should say at some places it is not more than 100 yards to keep in the best water.

1993. Then would you go up at night if you had the choice; would you attempt that channel at night at low water?—Not with a vessel of that draught of water, of 13 feet, if I had been obliged to go up that channel.

1994. Am I to understand you that the draught of water you have mentioned is the lowest upon the bar at neap tides?—I did not say what water there was upon the bar; I said the ship drew 13 feet of water, and I have been waiting to get over with that draught of water an hour and a half or two hours; at the same time, I consider we have only nine or 10 feet of water upon the bar at low water.

1995. Does your remark apply to the very lowest state of tide which occurs during the year?—I should say the lowest is from seven to eight feet.

1996. The object of the question was this: you have stated you were obliged to lie off from Liverpool to escape the bar; was that at half-tide or quarter-tide?—That would be nearly low water.

1997. Should you conceive the same objection would apply to quarter-flood?—No, there would be 13 feet of water or more at quarter-flood.

1998. Mr. *Shaw.*] When you have been obliged to lie outside the bar as you have just described, have you been subjected to much inconvenience?—I have.

1999. What is the situation of a vessel obliged to lie outside the bar?—I should say to wait for water is dangerous of a dark blowing night, say a gale of wind.

2000. Explain why?—With the wind blowing to the west or north-west your ship would be driven on the Banks, which has frequently occurred, and wrecked.

2001. It is very shallow, I believe?—Yes, the Banks outside the bar are about three miles off; I have seen, at various times, vessels lost there.

2002. Then you conceive a vessel obliged to lie outside the bar for water is exposed to considerable danger?—I do.

2003. *Chairman.*] Would there be any danger of a vessel running foul of her?—There would.

2004. Mr. *Grogan.*] Has it ever occurred to you at quarter-flood, when you could float in, to be obliged to anchor, or in fact, incur risk of going upon the Banks, in consequence of other vessels occupying that narrow channel you spoke of?—No, I never was in that position of having to wait for those vessels to go through.

2005. Mr. *Vivian.*] What number of steam-packets would be required from Brean Down, supposing that were to be adopted as the station to communicate with Ireland?—I should think you would require five.

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2006. What number would you require to run to Cork?—I think you would do with the same number to Cork as to Waterford, for the difference of time would not require an additional boat. The one I speak of would be one to stand by, and be ready when the others were at work.

2007. Now what number of packets would be required from Hobb's Point to Waterford?—Three.

2008. Is that supposing there was one from each side daily?—Yes; one to be running each day, and another to be standing by, to enable them to keep their machinery in repair.

2009. *Chairman.*] Do you think three would be enough, in the event of a very long passage, with strong heavy weather across, and allowing for having one always in repair?—I should think four would be better.

2010. You think there ought to be three vessels in actual service?—I do.

2011. Mr. *Vivian.*] What would be the probable detention of a steamer starting from Brean Down, bound to Waterford, and calling at the Mumbles for bags, assuming that a pier and landing-place were constructed there?—From three quarters of an hour to an hour.

2012. How far to the southward of the Mumbles Head does the course lie, from Brean Down to Waterford?—About four miles and a half; that is, if they run as near as the present vessels run to the southward of the Mumbles light-house.

2013. Can you state what coals the packets from Hobb's Point usually consume?—It is a Scotch coal, coming from Trone.

2014. What is the relative strength of that coal and the Swansea coal?—I should say one ton of the Swansea coal would equal one ton and three quarters of the Trone coal.

2015. What was the price paid by the Mountaineer for the Swansea coal delivered on board?—Five shillings and three-pence a ton.

2016. Do you know what is the price paid at Milford for the Scotch coal?—About three years ago I paid for the Trone coal which we had from Government, 19 *s.* 6 *d.* a ton.

2017. Do you know what the contract price paid by Government was?—I heard it was 12 *s.* 6 *d.* a ton.

2018. What would be the freight of coal from Swansea to Milford?—About 2 *s.* 6 *d.*, or 3 *s.* a ton.

2019. At what price do you consider the Swansea coal could be delivered on board the packets at Milford?—About 8 *s.* a ton.

2020. Are you acquainted with the harbour at Cardiff?—I am.

2021. Is there any landing-place in the neighbourhood of Cardiff which would be accessible at all states of the tide?—None.

2022. Is there any harbour that is calculated for steam-boats to communicate with the opposite coast, at given hours, for Post-office purposes?—None.

2023. Could a harbour be made?—Yes.

2024. Where should you recommend the harbour to be constructed?—I should say, as near to Cardiff Locks as it could be made.

2025. What would be the probable expense?—From 4,000 *l.* to 5,000 *l.*; and that would be made of slag.

2026. What is the breadth of the Channel at that part?—I think it is from 10 to 11 miles.

2027. *Chairman.*] What time would you allow for a proper steamer for that purpose, to go from Cardiff to Brean Down?—From about an hour and a quarter to an hour and a half, having to contend with the tide of ebb, and the tide of flood taking the ship on the beam.

2028. Mr. *Morgan.*] Where would you propose to make the pier at Cardiff?—Near the Locks.

2029. Is there not a large bank of mud there?—The channel which goes up between, would give you water enough at all times to get into it.

2030. How near could a steam-packet get up to the present gates?—When I said as nigh as we could get to the Locks, I meant to get the pier as nigh as we could to the entrance of the gut, that is taking care to have sufficient water for a steamer to get within that distance and then make a road up.

2031. How far must that pier extend into the channel?—It would be, perhaps, nearly half a mile.

2032. Mr. *Vivian.*] Are you acquainted with the Old Passage?—I am.

2033. That

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2033. That is the ferry across the Severn?—Yes.

2034. What is the breadth of the ferry at the Old Passage?—I think it is somewhere about a mile and three quarters, or two miles.

2035. Is that the lowest ferry in the channel?—Yes.

2036. Did you cross the Old Passage in coming up?—Yes.

2037. Was it in an open boat or a steamer?—An open boat.

2038. Was a steamer on the station at that time?—There was.

2039. Could not she approach the shore?—She could, but I believe she was waiting for the mail; I came up by a stage-coach.

2040. Are the landing-places at the old ferry capable of improvement, so as to be able to embark at any time in the steamer?—I think they could, by extending the present slips into five or six feet of water.

2041. Have you any papers relating to the trade of Swansea with Ireland?—Yes.

2042. What are the papers you produce?—Returns obtained from the custom-houses. It appears from these returns that the estimated value of flour entered at the port of Swansea from Ireland in the year 1841, was

	£. 45,355
And at Neath	42,500
	87,855
Of wheat and other grain, entered at the port of Swansea	15,532
	103,387
And of copper ore, from Ireland	50,000
	153,387

The exports of coal and culm in the year 1841, were,

From Swansea	58,227 tons.
— Neath	40,941 –
	99,168 –

2043. Have you any returns of the shipping?—Yes. The number of vessels entered inwards at the port of Swansea from Ireland in the year 1841, was

	349	17,721 tons.
And outwards	506	40,740 –
And from Llanelly, to the westward of Swansea,		
Entered inwards, with cargoes	37	1,998 –
And outwards	462	34,356 –

2044. Have you any return from the Post-office?—Yes; the number of letters from Swansea to Ireland daily, 120.

2044*. Do you believe these several returns to be correct?—I do.

[*For Questions* 2045 *to* 2260 *see pp.* 91 *to* 107.]

Veneris, 6° *die Maii*, 1842.

MEMBERS PRESENT.

Mr. Corry.
Lord Emlyn.
Sir Robert Ferguson.
Mr. Morgan.
Mr. Murphy.

Sir Denham Norreys.
Mr. Reade.
Mr. Shaw.
Mr. Stanley.
Mr. J. H. Vivian.

LORD INGESTRE, IN THE CHAIR.

Capt. *J. N. Tayler*, R. N. C. B.
6 May 1842.

Captain *Joseph Needham Tayler*, R. N. C. B. called in; and Examined.

2261. *Chairman.*] YOU are a Captain in the Royal Navy?—Yes.

2262. Have you directed your attention to the forming of harbours?—Yes, I have made it a study for a considerable number of years.

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2263. Do you know Uphill Bay or Brean Down?—Yes.

2264. Describe it, if you please?—The mud runs out for about three-quarters of a mile to low-water-mark, and at Brean Down there is a reef of rocks runs out for about three-quarters of a mile. At the end there is a rock called the How Rock; this affords protection from the south-west winds in a small degree, but not sufficient to make the harbour a secure harbour for anchorage, without some other barrier between that point and Anchor Point, further to the eastward at about two miles. It forms Uphill Bay. The flood tide sets off the How Rock, and does not run into the bay with much force; and therefore a protection carried out from the How Rock for about a quarter of a mile, I think, would afford sufficient protection for the purposes required, that is, for a steam-packet station. There is a great tendency, of course, to accumulation of mud in that bay, and indeed I may say throughout the Bristol Channel. I consider, if a stone breakwater were made, it would create an accumulation of mud, and probably might endanger the anchorage.

2265. What should you consider the best mode of protecting ships there?—I should think the floating breakwater, which I have directed my attention to very much, would answer the purpose, and would be a cheap mode of doing it; and it might be accomplished in a few months.

2266. In what direction would you moor the breakwater?—In a north-east direction.

2267. Would that take the tide fore and aft?—Yes.

2268. Both ways?—Yes. I say a quarter of a mile; of course you can add to it, according as you require to increase your harbour.

2269. Can you give any idea of what would be the cost of the formation of such a breakwater?—A breakwater of a quarter of a mile, upon that principle, could be accomplished for about 20,000 *l.*

2270. Are you aware of the difficulties of landing in Brean Down, on account of the great rise and fall of the tide?—There is a great rise and fall of tide, and if it were absolutely necessary to land upon the mud at low water, it might be very easily accomplished; but there is nothing in the rise and fall of the tide to prevent a landing-place being made upon the rocks.

2271. Do you include the expenses of a landing-place in the sum you mention?—No; that is merely for a harbour. If it were necessary to land upon the mud, that could be very easily accomplished. Of course, there would be a coal depôt; and if there was a vessel moored inside the breakwater to furnish coals for the steamers, an entré-port could be made for them to pass through into a barge, and that barge would be connected with a chain, to be brought up by a small locomotive engine, upon slides over this bank. I drew out a plan for that at Portishead, when I was down there some time ago; and it was very much approved of, because it does not interfere with the passage of vessels inside the floating breakwater.

2272. Would it allow of the embarkation of carriages?—Yes, carriages and everything; it would be a double slip where you land; one would be for carriages, and the other for passengers.

2273. At what do you estimate the cost of that landing-place?—The cost of that would be about 5,000 *l.*

2274. Then you would make a protection for the harbour, and an efficient landing-place, for 25,000 *l.*?—Yes. Of course, if they make buildings, or anything of that kind, it would make a difference. I speak of a breakwater and landing-place only.

2275. Are you acquainted with the anchorage at Swansea?—Yes; I know the Mumbles very well.

2276. Have you looked at it with the view of placing a floating breakwater there?—I have not looked at it for that particular purpose, but I have always considered it would afford a very fine protection; it is a large harbour, and the bay runs deep in; there is a good deal of natural protection already afforded, and the anchorage is very good; but there is no objection to an anchorage anywhere in that part of the coast; the holding-ground is very good on both sides.

2277. Is there a harbour of refuge wanted there?—There certainly is; because vessels have frequently got under weigh at Bristol to go to seaward, and then had to put back. There is an instance of one vessel, in company with others, which put back, anchoring under Lundy Island; and the one which anchored at Lundy Island actually made a voyage to the West Indies and back, and then found the other vessel still remaining there. That is recorded at Bristol. The Channel is

a most

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a most dangerous place, in consequence of the great fall of tide and the change of the sands; so that I do not know any place at this moment which requires more protection than the Bristol Channel; there is room for it on both sides. A very good harbour of refuge might certainly be made at the Mumbles. It ought to be a breakwater of a mile, for you have frequently 300 or 400 vessels passing up and down Channel; and the loss of vessels upon the Welsh coast is larger than upon any other part of Great Britain, in proportion to its size.

2278. Mr. *Vivian*.] Do vessels bound to the westward, and driven back by south-westerly gales, seek shelter in the Mumbles ?—Yes.

2279. They do so at present ?—Yes, they do take shelter there; but the protection is not good at present.

2280. Does the Mumble Head afford a complete protection from the south-west ?—The natural protection is very good, but not sufficient; by a breakwater being carried out, it would be protected completely.

2281. What would be the cost of a mile of breakwater ?—The cost of a mile would be in proportion to that of a quarter of a mile, about 80,000 *l.*; that would cover every expense. I should think three-quarters of a mile would be quite sufficient for the Mumbles.

2282. That would make the cost 60,000 *l.* ?—Yes.

2283. What number of vessels would it afford protection to ?—The Plymouth Breakwater affords protection to 300 vessels, and that is a mile; there is a finer natural protection at the Mumbles, and therefore three-quarters of a mile at the Mumbles would afford as much protection as a mile at Plymouth.

2284. What depth of water would there be inside the breakwater ?—That depends upon the distance you carry it out; I believe it is seven fathoms where the anchorage is, and from that to four.

2285. Do you consider, in a nautical point of view, that the Mumbles would be a good station for Government packets to Ireland, in the event of such a breakwater as you describe being made ?—I was looking to it for general protection; when I was speaking of a mile of breakwater, it was for the mercantile trade. The question as to a packet station would, of course, rest upon whether it would be so convenient on that side of the Channel as on the opposite side.

2286. Mr. *Reade*.] Such a long breakwater would not be required for packets? —No; you can extend it at any time; you can use a quarter of a mile, and then extend it.

2287. Then it need not be more costly than at Brean Down ?—No; it would bear the same proportion.

2288. Mr. *Vivian*.] What protection would be necessary for steamers for Post-office purposes ?—I should certainly advise a few sections more at the Mumbles than I should at the opposite side, because you would be more exposed there to the east winds than at the other side.

2289. Mr. *Reade*.] Is it altogether a more exposed situation than Brean Down ? —No, I do not consider it so; because the land on the opposite side breaks it off, and the wind does not blow in that quarter so much. I do not think there is much difference in respect to natural protection.

2290. Mr. *Vivian*.] Does the tide run as strong at the Mumbles as it does at Brean Down ?—That I am not confident of; but I think there is little or no difference in the tide up the Channel; in the charts the same set of tides is given.

2291. In a nautical point of view, which do you consider the best station for Government packets to Ireland, from the Mumbles or from Brean Down ?—I should say Brean Down; the only difference is, that it is a shorter run to the Mumbles when you are coming in up Channel; the only difference is the distance up the Channel, which is very little; this is accessible, of course. You have not so far to run; but you have so many lighthouses, that there is no danger running into Uphill Bay, because you have a light directly astern of you; so that when you run in there, those very lights conduct you into the anchorage.

2292. Those lights may render the navigation of that part of the Channel secure; but, in running to the Mumbles, would any such beacons be required ?—Yes.

2293. Should you have any difficulties to encounter ?—Yes; there is the White Oyster Ledge. I am not so capable of answering the question as those who have surveyed it.

2294. Supposing packets were to start from Brean Down, and merely to call at the Mumbles to take in the bags, what protection would be required ?—You would

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require the same protection; you would require a quarter of a mile protection there certainly, because the steamers lying-to there inside of a breakwater of this kind, you would lay down mooring buoys; they would take up their moorings, and wait until the mail was put on board, and then be off again; they would not put down their own anchors, if you had moorings for them.

2295. *Chairman.*] It would be necessary to make a landing-place besides the breakwater?—Yes.

2296. And at the same cost as at Brean Down?—Yes.

2297. Mr. *Vivian.*] Has your floating breakwater been tried in practice?—Not in practice; I have tried it by experiment in Plymouth, at a length of 20 feet.

2298. What is the depth you propose for a breakwater?—The depth will correspond with the local soundings. The sea is tranquil 18 feet below the surface; and in deep water I have them 18 feet. When I form them for less depth of water, I reduce them accordingly.

2299. Your breakwater depends entirely upon the anchors and cables holding? —It depends upon the anchors and cables with timber moorings; ground moorings have been taken up at Plymouth after 22 years' constant use.

2300. Would that breakwater present its broadside to the sea?—Yes.

2301-2. And would there not be a great strain upon the anchors and cables? —No. Breakwaters have hitherto been made to float upon the surface, and they rise the same as a water-fowl upon the water, and consequently the whole body of the sea passes on into the bay; and therefore those breakwaters were abandoned, and were considered of no use. I have taken the depth of the agitation of the sea, and have proved that it is not more than 18 feet below the surface. I have taken the elevation of the beach in various situations, and of rocks exposed to the agitation of the sea and wind, particularly the Eddystone, and nature has told me that the inclination or elevation of a beach is about 35 degrees. My breakwater is made upon that principle of inclination. The Mewstone, which is exposed to the agitation of the sea and wind off Plymouth, where westerly winds blow, upon an average, nine months in the 12, is formed upon that inclination, and upon that principle I have formed my breakwater. Independent of that there is a more important feature attached to it; that the timber moorings running out to windward, forming an inverted arch, when the sea strikes the breakwater, it immediately recedes, and the water in it, and to leeward of it, being at rest, resists the force of the sea, and therefore the element itself becomes a breakwater, without any strain upon the framework or the moorings. For instance, if there was a shield down in the water, and the sea breaking against that shield, only of course there would be no agitation on the other side of it; that water would be inert and at rest. If you lift up that shield, a wave, which is a loose body, would strike upon an inert body at rest, and that being 10 times the magnitude of the other, of course becomes a resisting medium, with little strain upon the moorings. The water being in this breakwater, acts the same as the atmosphere. I could not hear the pressure of 15 lbs. to the square inch upon my hand, if there was not a counter pressure; now the water acts in supporting this in the same manner, and therefore there is very little strain upon the timber, and very little strain upon the moorings. That I have ascertained by experiment, and by following nature, which is unerring in its ways.

2303. And you consider such a breakwater adapted to still the water in the roadstead of the Mumbles?—Yes, perfectly so. There is also a new glue which has been tried by the Admiralty at Woolwich, which has such tenacity that, in their experiments, the wood came away in every direction, instead of the seam which fastened it together where the glue was. It hardens under water, the sun has no effect upon it, and such is its strength, that a breakwater might be formed by it without using iron bolts; by merely using trennels. It is also very cheap. I propose to use that, and to cover the breakwater with it. I had a preparation of my own, but I think this glue is much better.

2304. Mr. *Stanley.*] What was the scale of your experiment at Plymouth?—Twenty-two feet in length.

2305. And what depth?—The depth is in proportion to 18 feet; it was on a section of about a two-inch timber frame; it was about four feet in depth.

2306. Did you try it in shallow water as well as in deep water?—Yes, and in rough weather. There was an eminent engineer present when it was tried, and he was surprised at the effect of it; that while the sea was breaking past it at the side,

side, the froth and some chips which happened to be in the water adhered to the breakwater on the lee side without leaving it.

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2307. Do you consider, when you say all motion ceases 18 feet below the surface, that is the same in deep as in shallow water?—In shallow water there is less resistance, because otherwise fish could not exist upon a bank. We have banks off the harbours, and in various fisheries where fish continue, and if the sea broke upon those banks with the same force that it does upon the surface, the fish could not exist there. Since I have made this experiment and published it, it has been tried by the diving-bell, and they have ascertained that the water is perfectly tranquil at 18 feet below the surface; and if you take 9 feet as the medium, it decreases down from 9 feet, and therefore it will cease at the depth of the breakwater of 18 feet.

2308. Is there not a greater ground-swell in shallow water than in deep?—No, because the sea is lessened by the resistance there is given to it; a wave is not more than nine feet deep.

2309. Sir *Denham Norreys*.] When you say nature has formed beaches at a certain angle, does not the angle formed, supposing the materials of which the beach is composed are easily displaceable by the water, depend upon the prevalence and strength of certain winds?—Not beyond 18 feet below low-water mark, because there the sea has no power.

2310. In reference to beaches, does not your answer refer to that portion of the beach which is above low-water mark?—No, there is no difference in the angle; you prolong that angle, but it is the same inclination if you carry it up a mile.

2311. Have you made a survey of Brean Down, in reference to the formation of a breakwater there?—No, I have not made a survey; but being acquainted with the locality of it, the information which I have given is as perfect as if I had made a survey in reference to a breakwater.

2312. Have you ever taken the soundings there?—I have taken soundings in the Bristol Channel, and I know from the chart what the soundings are there, but I have never taken the soundings at that point. The chart gives me that information.

2313. And you consider yourself perfectly justified in giving an opinion as to what the cost of a breakwater would be, and the length of it, and the mode in which it should be constructed, from the position in which you propose to place that breakwater upon the chart?—Yes, from the Government chart.

2314. *Chairman*.] In forming your ideas of a breakwater, is it necessary for you to know the exact depth of water; to take the soundings, and to take a very accurate survey of any harbour?—If the soundings are beyond five fathoms it is not necessary, because I could make them at 18 feet; if it were necessary to make the breakwater in shallow water, of course I should reduce the 18 feet in proportion to the fall. The soundings in the chart are at low water, and it is marked there as 4 fathoms, and from 4 fathoms to seven, going up to 13.

2315. Sir *Denham Norreys*.] You have spoken about a rock which you have called the How Rock; is the commencement of the breakwater to be connected with the How Rock?—No, I do not connect it with it; if they wish to have a passage in between, they would not be connected.

2316. Mr. *Reade*.] You would prefer not connecting your work with any rock?—No, not if you wish to have a passage. You could have a passage in and out of that both ways.

2317. *Chairman*.] Then in forming your breakwater, you want to know nothing but the length of breakwater required, and the general depth of water?—Nothing more.

2318. Sir *Denham Norreys*.] And no reference to tides, currents, or the general prevalence of particular winds?—I consider that a survey has been already taken, or it would be necessary for me or some one else to do it; but in reference to the currents, and the prevalent winds, it would be necessary that the breakwater should be moored in accordance with the wind and tide.

2319. Is that merely as to the direction of the breakwater, or as to the extent of it?—Merely as to the direction and extent for general protection.

2320. The extent of a general protection would require to be ascertained by local observation?—Yes, for a large harbour of refuge.

2321. Which you state you have not made in reference to this?—No, what I stated with respect to the quarter of a mile I have ascertained.

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2322. *Chairman.*] Are the Admiralty surveys sufficient for you to be guided by in your estimation of what sort of breakwater would be necessary for a particular harbour?—Yes, they show me the currents and the prevalent winds.

2323. I presume there has been an accurate survey taken by some one?—Yes.

Mr. *George Stow*, called in; and further Examined.

Mr. *George Stow*.

2324. Mr. *Vivian*.] YOU stated, I think, that the mail arrives at Bristol from London at one o'clock in the morning, and that the Pembroke mail is despatched from thence at six in the morning?—Yes.

2325. What is the cause of the delay of five hours in Bristol?—The delay is caused by an objection on the part of the contractors to leave Bristol earlier.

2326. What is their reason?—That it would be injurious to them as coach proprietors to run at an earlier hour in the morning; another reason is, that if we went away from Bristol at an earlier hour in the morning we should get to Chepstow before the mail from the north reached Chepstow from Gloucester; consequently, all letters from the north of the Pembroke line would be delayed 24 hours.

2327. Do the contractors object on account of the defective state of the Old Passage?—They object to crossing the Passage at an early hour in the morning.

2328. Do you consider the same objection would apply if you could cross the Passage in a steam-boat?—Not to so great an extent, I apprehend.

2329. It has been stated in evidence before this Committee, by Mr. Barber, a civil engineer, that by the expenditure of from 6,000 *l.* to 7,000 *l.* in extending the piers at the Old Passage to low-water mark, a passage could be effected in a steamer at all states of the tide; do you think the Post-office arrangements would be facilitated, and the passage made with greater regularity if these improvements were effected?—Undoubtedly.

2330. Do you consider there would be any objection to conveying the mail across at an earlier hour, supposing these improvements were made?—I apprehend there would be still an objection on the part of the contractors.

2331–2. For what reason?—Contractors universally prefer starting, if they can, at a convenient hour for passengers; for instance, they look upon six o'clock as an early hour for starting.

2333. Do you attach much importance to the conveyance of passengers; is it not your object to forward the mail?—Yes, but if we can consult the convenience of passengers without injury to the correspondence in any way, we do so.

2334. Do you think you would be justified in detaining the Irish mail at Bristol five hours for the convenience of passengers and the contractors?—Certainly not; but the mail from the north has always been our difficulty in getting away from Bristol. If it is decided to leave the correspondence for the Pembroke line behind for 24 hours, there would be no difficulty in getting from Bristol at an earlier hour.

2335. Then, putting aside for the present the consideration of the question of the correspondence from the north, at what hour could the mail leave Bristol, supposing it could be conveyed across the Passage in a steam-boat?—I should say two o'clock at the earliest.

2336. Then, supposing it was to leave Bristol at two o'clock, at what hour would the mail arrive in Swansea?—About 12 at noon.

2337. That is, in 15 hours from London?—Yes, from the railway station.

2338. Now, supposing you allow the same time for the up-mail, at what hour would the up-mail leave Swansea?—Three o'clock in the afternoon.

2339. Then there would be three hours allowed in Swansea for replying to letters from London on the same day?—Yes.

2340. And consequently a day would be saved in Swansea, and all places in Glamorganshire to the eastward of it, in their correspondence with London?—Yes.

2341. Now, supposing four hours were saved in the time of the conveyance of the mail to Hobb's Point, at what time would the mail arrive at Hobb's Point?—A few minutes before six o'clock in the evening.

2342. Then, supposing the passage to Waterford, in a better description of steam-boats,

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steam-boats, could be effected in 10 hours, at what time would the mail arrive at Waterford?—At four o'clock the next morning.

2343. At what rate does the mail travel from Bristol to Hobb's Point at present?—About 9½ miles an hour.

2344. At what rate did it travel formerly?—Ten miles.

2345. Does it go the whole way at that rate?—Only to Carmarthen.

2346. At what rate does it go from Carmarthen to Hobb's Point?—I am not prepared to state exactly; at a slower rate.

2347. Is the line of communication from London to Swansea through Bristol, and across the Old Passage, the most direct line from the metropolis?—Certainly not.

2348. Which is the most direct line?—Through Gloucester and Chepstow.

2349. Would it not be an advantage, and a saving of time and of comfort to travellers, if the mail communication between London and Swansea was through Gloucester, instead of over the Passage?—Yes.

2350. Have not complaints frequently been made to the Post-office from different towns in Glamorganshire of the delays in the passage, and the inconvenience caused to travellers?—Yes, many complaints have been made.

2351. Is it not to suit the convenience of the Post-office that the mail is conveyed from Bristol over the Old Passage?—No; we advertised for a mail direct from Gloucester by Chepstow, and did not succeed in obtaining a tender for it. The late Postmaster-general decided to send the mail by that route, and a tender was advertised for, and none was received; and the consequence was, that we were obliged to communicate with the parties we had given notice to to discontinue on the Pembroke road, and induce them to continue the mail.

2352. Is it not always more desirable to carry mails by land than to subject them to the inconvenience and delay of a water communication?—Certainly.

2353. Then the line through Gloucester is the most direct line to the whole of the southern part of the principality?—Yes.

2354. And do you not consider that the inhabitants of the principality have claims on the Government to render the passage as convenient as it can possibly be made for the conveyance of the mails, that route being taken to suit the general purposes of the Post-office?—I hardly know that I ought to give an opinion upon that point.

2355. Did the mail formerly cross the New Passage?—I believe it did several years ago.

2356. Do you know what the expense of the establishment was at the New Passage at the time it crossed there?—I do not.

2357. What is the allowance paid at the Old Passage?—£. 150 a year.

2358. That is for the conveyance of four mails?—Yes.

2359. Is there not a detour of six or seven miles made in crossing the Old Passage from Bristol to Milford instead of going by the New Passage?—Yes.

2360. Have not savings been effected by the Post-office by taking the Old Passage as the line instead of the New?—I am not aware.

2361. Has there not been a branch post from the New Passage to Chepstow saved?—It is very probable.

2362. Does not the mail at present pass through Chepstow?—Yes.

2363. Have you any account of the number of passengers by the mail?—Yes; the number of passengers the mail carries is stated in the time-bill.

2364. Has there not been an increase in the number of passengers since the mail was crossed at the Old Passage?—Undoubtedly.

2365. And less difficulty in obtaining contracts to horse the mail?—Yes.

2366. Has a less sum been paid for the mileage?—I should say a greater sum is now paid. I cannot say what difference of mileage was saved when the Old Passage was taken in lieu of the New Passage; at present we pay higher for this mail than we ever did.

2367. Is the Old Passage the general line of communication between the South of England and South Wales, and the South of Ireland?—I believe it is.

2368. Mr. *Morgan*.] If the letters from London are transmitted through Gloucester and Chepstow, must there not also be a mail communication across the Old Passage from Bristol to Chepstow and Newport?—Yes.

2369. You must still have a mail across the Old Passage?—Yes, unless those letters are delayed and sent through Gloucester.

2370. Then, in that case, all letters from Bristol to Chepstow and Newport

Mr. *George Stow.* must go round by Gloucester?—Yes, unless there is a direct communication through Chepstow.

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2371. That would be a delay probably of a day?—It would very much depend upon how you fitted your mails to it.

2372. Mr. *Vivian.*] Is there not at present a day coach from Bristol to Swansea, and was not an offer made to the Post-office to carry the bags by that day coach, provided the Post-office would merely find the coach?—Yes.

2373. In the event of the London mail being carried through Gloucester?—Yes.

2374. Mr. *Morgan.*] The London mail leaves Bristol for South Wales at six o'clock in the morning?—Yes.

2375. And arrives at Newport at 10?—A few minutes before 10.

2376. Could the mail be transmitted from Bristol to Newport, round by Gloucester, in the same space of time, four hours?—The London letters would not go from Bristol; they would go direct from Gloucester.

2377. I mean the Bristol letters to Newport?—They could not go round by Gloucester in four hours.

2378. A day must intervene as regards them?—Yes, if they are to wait for the next mails, unless a special conveyance is put on; a second mail, in fact, is the only thing that would remedy that delay.

2379. That, of course, would be an additional expense and great inconvenience?—Of course, an additional expense.

2380. Mr. *Vivian.*] Was there not a tender to horse that second mail, if the Post-office would find the coach?—An offer was made when the other mail was running, and in consequence of that the late Postmaster-general decided to adopt the Gloucester line, and advertised for tenders. There was no intention to keep the other mail up; it was to adopt the Gloucester line for the London letters.

2381. With respect to the conveyance of letters, would there be any objection to despatch the mail from Bristol at two o'clock in the morning, on account of the letters from the southern or western parts of England?—The letters from the western parts of England would circulate very well, because they arrive in Bristol at one o'clock in the morning; they would go on at two o'clock. The letters from Portsmouth and the southern parts of England do not arrive till eight; they would be left behind.

2382. They are left behind as it is?—Yes.

2383. And there would be no more inconvenience in despatching the mail at two o'clock than there is at present, as regards them?—No.

2384. At what time does the mail leave Liverpool for Gloucester?—At seven o'clock in the evening.

2385. Do the letters for South Wales leave Liverpool at seven in the evening?—Yes.

2386. How many mails are there in a day from Liverpool to Birmingham?—Three, the night London mail, the day London mail, and the local mail.

2387. At what hour does the day mail leave Liverpool?—The day mail leaves Liverpool at 45 minutes past 3 in the morning.

2388. As there are trains from Liverpool to Birmingham and from Birmingham to Gloucester at different times in the day, could it not be so arranged that the letters from Liverpool to South Wales could be despatched from Liverpool at three o'clock in the afternoon?—It could be so arranged, certainly.

2389. And in that case all the letters from Liverpool to Birmingham and South Wales would arrive at Chepstow in time to meet the Bristol mail four hours sooner than at present?—Yes; but everything to the north of Liverpool and Manchester, including Scotland, which works up to Liverpool, and is fitted to the evening mail, would be left behind.

2390. Are you not constantly making alterations in your arrangements at the Post-office, and could it not be arranged by some of those alterations?—It could not be arranged unless you despatched earlier from Scotland, and every town in the North of England, and from Liverpool and Manchester, which of course would call forth great complaints from every town where you would curtail the convenience they now have.

2391. Mr. *Morgan.*] In the return we have had furnished this morning, it appears the packet leaves Hobb's Point for Waterford very irregularly, sometimes at ten o'clock in the morning, sometimes at two, sometimes at six, and sometimes at eleven; can you state the cause of that irregularity?—If such delays have occurred, they have most probably been caused by snow on the road.

2392. I am

2392. I am taking the month of January. At what hour ought the packet to leave Hobb's Point?—I think, at 11 o'clock, immediately after the mail arrives; the stated hour is 11 p.m.

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2393. If the mail to Hobb's Point can be accelerated two or three hours, the packet could start two or three hours earlier?—Certainly.

2394. And upon the average of a nine or ten hours' passage, might be able to arrive in Waterford about eight o'clock in the morning?—Yes.

2395. That would always be daylight?—Yes.

2396. Mr. *Vivian.*] Was not the principal reason for transferring the mail from the New Passage to the Old Passage the greater convenience of crossing the Severn at that point?—I cannot state that from my own knowledge, but I presume it was.

2397. As affording the means of conveying the mail across in a steam-boat, instead of in an open boat?—Yes, and the passage being shorter.

2398. I observe in the return, that in the six winter months of 1841, the down-mail was passed over the Severn 44 times, in an open boat, and the up-mail 87 times; making together 131, that the mail was conveyed across the Severn in an open boat during those six months?—Yes; we cannot compel the owners of the ferry to provide steamers for us: the understanding is, that whenever they can do so, they will have them in waiting. We have no power to compel them to provide steamers; they would not enter into any contract to do so.

2399. Was not the principal inducement for transferring the mail, and subjecting it to a detour of six miles in the route, that they could effect the passage in a steamer instead of an open boat?—I cannot say; it is several years ago, and I was not superintendent of mails at that time.

2400. Sir *D. Norreys.*] What is the time charged in the bill for the passage of the ferry?—Thirty minutes is the time we allow them.

2401. You allow them what you consider is the average time for passing?—Yes.

2402. Can you state how many times it has exceeded that average?—I cannot, without reference to the time-bills.

2403. How many times has it greatly exceeded that?—I think that appears in the return which has been furnished.

2404. Mr. *Reade.*] You stated that Gloucester and Chepstow is the best line to Swansea and Milford?—Yes, the most direct.

2405. So as to avoid that passage?—Yes.

2406. At the time the Post-office proposed to have a contract on that line, what advantage did you propose to gain in accelerating the mails by that line?—I should state, the Post-office did not wish to alter the line, but it was very much pressed upon the Postmaster-general by the towns in South Wales.

2407. The postmaster acceded to it, and offered a contract?—Yes.

2408. That contract was not taken?—No.

2409. What was the estimated advantage on the part of the South Wales people?—The Post-office thought it would accelerate the mail from half an hour to an hour.

2410. And have more certainty?—Yes, that is what the Post-office looked to. The object of the inhabitants of South Wales was to have a second mail; that the London mail should run direct, fitting the northern mail to it.

2411. *Chairman.*] The Bristol letters then would not be left behind?—No, not if there had been a second mail.

2412. Mr. *Vivian.*] At what hour does the London mail arrive at Chepstow at present?—It arrives at Chepstow about half-past seven o'clock.

2413-14. At what hour does the London mail arrive at Gloucester?—At 3 h. 14 m.

2415. Then, at what hour could it be forwarded from Gloucester to Chepstow?—At four o'clock.

2416. What is the distance from Gloucester to Chepstow?—Twenty-eight miles.

2417. In what time could that distance be run by the mail?—In not less than three hours.

2418. Then the mail, in going direct from Gloucester, would arrive in Chepstow at seven o'clock in the morning, instead of half-past, as at present?—Yes.

2419. And the ferry would be avoided?—Yes.

2420. In what time is a letter conveyed from Swansea to Waterford by Hobb's Point?—Nineteen hours.

2421. Under the present arrangement?—Yes.

2422. Supposing the packet establishment at Hobb's Point were suppressed, in what time would a letter be conveyed from Swansea to Waterford?—Assuming a packet station were fitted at Brean Down to the night-mail from London, a letter would be conveyed from Swansea to Waterford in 28 h. 45 m.

2423. With what point on the Welch coast would that communicate?—The letter, in that case, would be run by a mail-cart or coach from Swansea to Cardiff, and from thence by packet to Brean Down. Those were the points given, upon which this return was made up.

2424. What do you allow for the passage from Brean Down to Waterford?—Twenty hours; and three hours from Cardiff to Brean Down.

2425. Then, by that arrangement, a letter from Swansea to Waterford would have to be conveyed to Cardiff, from thence across the Channel to Brean Down, and then down the Channel to pass Swansea again?—Yes.

2426. Mr. *Morgan.*] That is, supposing the packet fits with the night-mail from London?—Yes.

2427. Supposing it were fit with the day-mail?—The time occupied would be exactly the same, because we could fit the mail from Swansea and the packet from Cardiff, and the packet from Brean Down to Waterford, to the day-mail from London.

2428. Mr. *Vivian.*] How long would it take to convey a letter from Swansea to Waterford by Holyhead and Dublin?—It would go by Gloucester, and from thence, by railway, to Birmingham. A letter circulating that way, would leave Swansea at eight o'clock in the morning, say on Monday, and be in Waterford at nine o'clock on Thursday morning; that is 73 hours. Circulating by Birmingham and Birkenhead, it would be 49 hours.

2429. So that there would be a difference of 20 hours?—Yes.

2430. Mr. *Morgan.*] Supposing this arrangement, which we have just imagined, to take place, how would the letters passing through South Wales to London and back be managed; would it not be necessary to have a second mail, one for English letters and one for Irish letters?—It would.

2431. At what time does a letter leave Swansea now to go to London?—At eight o'clock in the morning.

2432. The Irish letters must then go by the up-mail, instead of the down-mail?—Yes; but I have assumed, in this return, we should fit the mails to the despatch of the Irish mail at Brean Down; and, therefore, the letters would leave Swansea at three o'clock in the evening, the same as for London.

2433. They would go by the up-mail?—They would both go to Cardiff, and be conveyed to Brean Down, and fit in with the letters from Exeter and the west.

2434. Then you must have two mails?—Yes.

2435. *Chairman.*] Would that be an acceleration of the present arrangement of the letters from Swansea to London?—Yes.

2436. Mr. *Morgan.*] The up-mail from Swansea leaves early in the morning?—Yes, at eight o'clock.

2437. Would you propose to let the mail leave at eight o'clock in the morning, to carry the Irish letters to Brean Down?—Certainly not, it would leave at three o'clock in the evening; that would depend entirely upon what mail you fit your packets to. If you fit it to the night-mail, it would leave at three o'clock in the evening; if you fit it to the day-mail, it would leave at three o'clock in the morning.

2438. And the mails through South Wales must all be altered?—Certainly.

2439. Would not you make a difference in the time of the mail leaving South Wales for London?—Yes.

2440. It would remove South Wales so much further from London?—No, it would bring South Wales nearer to London, if you fit it to the night-mail, because, instead of posting a letter in at eight o'clock in the morning at Swansea, you would post it at three o'clock in the evening.

2441. *Chairman.*] At what time is a letter, posted at Swansea at eight o'clock in the morning, delivered in London?—A letter posted at eight o'clock in the morning is delivered in London the next morning.

2442. At what time would a letter posted at Swansea at three o'clock in the evening, by the proposed arrangement, be delivered in London?—A letter posted at three o'clock in the evening would be delivered in London the next morning.

2443. So that there would be a direct gain of from eight in the morning till three in the evening, on letters from Swansea to London?—Yes.

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2444. Mr. *Morgan.*] What would be the case from Newport?—At Newport it would be a great benefit, because it is nearer to Brean Down.

2445. The London letters would then have to go to Cardiff?—The Newport letters would be run to Gloucester.

2446. Then the whole system of Post-office communication through South Wales would be entirely changed?—Yes, supposing such an arrangement as this.

2447. And the times of the present mails through South Wales would be entirely changed?—Yes; the direct mails would be done away with, and short mails would be worked to Cardiff to fit the packet.

2448. That is, supposing letters from Swansea to London are conveyed across the Channel from Cardiff?—Yes.

2449. Supposing those letters were conveyed from the Mumbles to Brean Down, what would be the time required?—I am not prepared to say what time it would occupy to go from Swansea to the Mumbles, and from the Mumbles to Brean Down.

2450. Supposing the passage from Swansea to Brean Down could be effected in three hours and a half?—Then the advantage would be greater to Swansea.

2451. But would you not, under that arrangement, have the inconvenience and irregularity of water conveyance?—Certainly.

2452. Sir *D. Norreys.*] Do I understand you to say, that with reference to the interests of Swansea, it would be desirable the mail should be conveyed to Cardiff, and then across the Channel to Brean Down, supposing there were a harbour and breakwater at Brean Down?—I did not state it would be desirable, I only stated the time it would occupy.

2453. Would your experience as an officer of the Post-office lead you to recommend the substitution of a passage such as that between Cardiff and Brean Down, for a considerable portion of land journey?—No; as an officer of the Post-office, I prefer land journey to sea, considerably.

2454. Mr. *Vivian.*] Assuming you are to send the letters from Swansea to London by Cardiff, what would you do with the letters from Newport, Chepstow, and the eastward of Cardiff?—I would send them to Gloucester.

2455. What is the best passage across the Severn below Gloucester Bridge?—I believe the Aust Passage.

2456. Are there not complaints of sending letters by the Aust Passage, as creating delays and irregularities?—Yes.

2457. Would there not be a still stronger objection to sending letters by a longer water conveyance than the Aust Passage, and that across the open Channel?—If the packets were framed in that manner and worked regularly, a very great saving between London and Swansea would be effected; that is unquestionable.

2458. Would there not by calculation be even a greater saving effected if the letters were landed at the Mumbles from Brean Down or Portishead?—It appears so.

2459. Mr. *Morgan.*] That is to say, letters from Swansea and Cardiff, if not letters to Newport. If letters to Newport were landed at the Mumbles there would be a very serious delay?—Yes, they would have to be taken on to Swansea.

2460. And to be taken down from Swansea to the Mumbles, to be despatched to Brean Down?—Yes.

2461–2. *Chairman.*] Will you have the goodness to trace a letter from Newport, and state the time occupied by the present arrangement?—At present a letter leaving Newport at 2 h. 7 m. on Monday afternoon is delivered in London on the following morning, say at eight o'clock.

2463. Will you do the same with a letter from Falmouth to Waterford?—A letter leaving Falmouth at five o'clock on Monday morning would reach Waterford at 12 o'clock at noon on Wednesday, by the present arrangement; that is in 55 hs. 7 ms. By the proposed arrangement a letter leaving Falmouth at 6 h. 42 m. on Monday morning, would reach Waterford at 10 h. 45 m. on Tuesday evening, being 40 h. 3 m.

2464. Will you do the same with a letter from Falmouth to Cork?—A letter leaving Falmouth at five o'clock on Monday morning for Cork would reach that place at 8 A. M. on Thursday under the present arrangement; that is in 75 h. 5 m. By the proposed arrangement, a letter leaving Falmouth at 6 h. 42 m. on Monday morning would reach Cork by Brean Down at 10 h. 57 m. on Wednesday morning; that is in 52 h. 15 m.

2465. Will you do the same with a letter from Southampton to Waterford, and

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from Southampton to Cork?—A letter leaving Southampton at midnight on Monday would reach Waterford by Hobb's Point at 12 at noon on Thursday; that is, in 59 h. 58 m. By the proposed arrangement, a letter from Southampton to Waterford by Brean Down would take 31 h. 30 m. A letter from Southampton, by way of Hobb's Point, now reaches Cork in 80 hours. Under the proposed arrangement, by Brean Down it would take 43 h. 43 m.

2466. In these calculations you have assumed arrangements are made to fit the night-mail from London?—Yes.

2467. The times would be the same by the day-mail?—Yes.

2468. If it were the day-mail that was arranged to go, would there be less loss of time than by the night-mail, to letters not from London?—The actual time employed in circulating would be the same; if fitted to the day-mail it would not be so advantageous to the London bags from South Wales, but it would embrace more correspondence generally from the West of England, as the western mails work into Bristol about that time.

2469. And letters from Southampton?—Yes; and, in fact, Brighton would then be brought into the line.

2470. Would it be possible to have a mail leave Southampton at such an hour as to reach Bristol, so as to go by that conveyance?—There is no question of it.

2471. You have said, the utmost you could expedite the mail at Hobb's Point would be to arrive there somewhere about seven in the evening instead of 11, by going direct through Gloucester?—Yes.

2472. That would be 23 hours, and 10 hours for the passage, would give you the London mail, arriving at Waterford by Hobb's Point, in 33 hours?—Yes.

2473. By the Brean Down passage the same letter would be put on board in 6 h. 45 m., and assuming the passage to be 20 h., that would be arriving at Waterford in 26 h. 45 m.?—Yes.

2474. That would make a difference of 6 ¼ hours?—Yes.

2475. So that the packet might have a passage of 26 ¼ hours, and still arrive at the same time it could arrive from Hobb's Point, even with improved packets and proper roads?—Yes.

2476. The packet might have an extension of 6 ¼ hours, and still be in at the same time as it could from Hobb's Point?—Yes.

2477. Sir *D. Norreys.*] You have stated that a letter now takes 59 h. 58 m. from Southampton to Waterford by way of Hobb's Point?—Yes.

2478. Is there not a quicker way of sending a letter to Waterford from Southampton than by Hobb's Point?—Yes, by Birkenhead; it is 48 hours that way.

2479. What is the quickest time in which a letter can be delivered from London to Waterford?—Thirty-seven hours by Birkenhead.

2480. What is the distance in time between London and Southampton?—Three hours from Post-office to Post-office.

2481. Then, would not a letter sent from Southampton three hours before the departure of the Dublin mail reach Waterford in 43 hours, instead of 48 hours?—Yes; but it is necessary that any letter going through London should be in the Post-office three hours before the mails are despatched. If letters were admitted into the General Post-office between five o'clock and eight, the mails never can be got away at the appointed time.

2482. But a bag for London sent from Southampton, or a bag for Ireland, sent from Southampton to London and forwarded direct, would not require any time for sorting?—No, if that bag were not opened in London, and had merely to be transferred.

2483. Or if they were sorted on the road?—There would be no time to sort them on the road; but the mail coming up from Southampton would embrace letters for all parts of England and Scotland.

2484. What time does it take from Southampton to Bristol?—I think it is about eight hours.

2485. Out of the 37 hours which a letter takes from London to Waterford by Dublin, how many hours is it detained on the road?—The only detention it is liable to is at Dublin, which is trifling. The packet should arrive, I believe, at seven or half-past seven, and the mails go away at nine. It may be two hours at the outside, and that, I believe, is required for official purposes in Dublin.

2486. Supposing a letter sent from Southampton; allowing three hours for the railway and three hours for the Post-office arrangements in London, it ought to arrive

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arrive at Waterford in 43 hours?—Yes, provided there were a mail there, in order to bring it on at that hour; say at two o'clock in the afternoon.

2487. Supposing a letter were sent from Southampton to Waterford by Brean Down, where would you send that letter to?—To Bristol.

2488. How many hours would you allow to Brean Down?—Nine hours 51 minutes to Bristol, and one hour from Bristol to Brean Down.

2489. What distance is it from Brean Down to Bristol?—I have calculated it, as far as the map will show it, at 21 ¼ miles. I have taken Weston-upon-Mare, which is very near the point.

2490. Supposing to the post-office at Bristol it takes 9 h. 51 m., would there be any delay at the Post-office in arranging the Southampton letters, on taking out the bags for Ireland and separating them?—Yes. I apprehend if a packet station is established at Brean Down, it would be necessary to make a very large office at that place, or at Uphill or Weston.

2491. The letters would be sent in the first instance to Bristol?—No; in that case they would be sent to Brean Down, if a post-office were established there, or it might be thought advisable to send them all to Bristol, and have them separated there.

2492. What time would that take at Bristol before the letters could be despatched to Brean Down?—It is difficult to say, but perhaps an hour.

2493. That is an hour for the post-office arrangements at Bristol?—Yes.

2494. Then what time would you allow as a fair time for the distance between the Bristol post-office, or the railway station and Brean Down?—I have allowed one hour.

2495. What time would you consider a fair time from Brean Down to putting on board the packet, and all the arrangements and getting passengers on board?—In making this calculation I have allowed 30 minutes; but I understand, in a conversation with the secretary of the Great Western Railway, that a branch railway would run down to the packet.

2496. Then by what you have stated now, the time from Southampton to on board the packet at Brean Down would be 12 h. 20 m.?—Yes.

2497. Now from Brean Down to Waterford, what average would you allow?—I have taken 20 hours.

2498. From what data have you taken that as the average passage?—From the return made out by direction of the chairman, assuming 20 hours to be the average passage.

2499. What time would you consider it necessary to have in Waterford to separate the interior letters before they could be despatched?—I have allowed 30 minutes, but that is only an assumption.

(Mr. *Parsons*, the postmaster of Waterford, being present, stated that it takes half an hour to sort the letters and despatch them to the interior.)

2500. At what time is the mail from Liverpool due in Dublin?—At seven in the evening.

2501. At what time are the mails despatched from Dublin to the interior?—The mails are despatched at nine o'clock from Dublin.

2502. What do you consider the average voyage between Liverpool and Kingstown?—Twelve hours.

2503. At what hour ought the mail to be on board in the Mersey?—They should be put on board the packet at Birkenhead at 6 h. 19 m.

2504. The average voyage being 12 hours, at what time, allowing for the transit from Kingstown to Dublin, ought the mail to be in the Dublin Post-office?—I cannot state exactly, but I think at half-past seven.

2505. It ought to leave the Mersey at 6 h. 19 m. a.m.?—Yes.

2506-7. And the average passage being 12 hours, it ought to arrive at Dublin at about 6 h. 7 m. p.m., allowing for the variation of time?—Precisely so; but I should state, when the average passage was taken at 12 hours, that was when the packet was sent off from St. George's Pier; it now goes from Birkenhead, and that is some little distance further.

2508. Allowing for the variation of time, that 12 hours' passage ought to bring the mail to Kingstown at six in the evening, and allowing 30 minutes to Dublin, that would bring it to the post-office at 6 h. 30 m.?—Yes.

2509. You state the mails are not despatched till nine o'clock, therefore you

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have 2h. 30m. from the average arrival of the mail until the time the mail-coaches are despatched?—Yes.

2510. Now, if upon a passage of 120 miles you require 2 h. 30 m. space for irregularity, what should you consider a fair space for irregularities upon a voyage of 170 miles, such as that from Brean Down to Waterford, which is stated to be a much more exposed one? What time should you consider it necessary to allow for irregularity upon such a voyage, before you despatched your mails?—I do not think it a parallel case at all; it is of much less importance, the despatch or detention of the Cork mail from Waterford, than to detain the whole of the mails for the interior in Dublin. More time is required as a margin for the arrival of the packets in Dublin, because all those mails are to be kept back for it.

2511. Does not the return of the times of arrival in Dublin show that you could not allow a less margin than you do for the irregularities of arrival?—Yes.

2512. There have been 102 days in the year in which they did not arrive in time?—Yes.

2513. And therefore you evidently could not allow less margin than from 6 h. 30 m. to nine o'clock?—The mails formerly left at seven o'clock, and they were altered to nine when we went all the way to Liverpool by railway, to allow for that difficulty.

2514. But if you take a margin of 2½ hours in a voyage of 120 miles, from Liverpool to Kingstown, what should you think a fair average to allow for a voyage of 176 miles from Brean Down to Waterford, which is stated to be a much more exposed voyage than from Liverpool to Kingstown?—My own opinion is, that so great a margin would not be required at Waterford, inasmuch as one mail only would be detained, which might be done without much difficulty; whereas in Dublin you have to detain the whole of the mails for the interior.

2515. The inconvenience might not be so extensive, but the inconvenience to all those towns which might depend upon Waterford as the direct line of communication would be equally concerned in placing the departure of the mails at a period which would include as many voyages in the year as possible?—It appears by the evidence, that the time allowed for the voyage is more than would be absolutely required; and in framing this return, I did it upon that data.

2516. *Chairman.*] Is not a part of the two hours and a half for Post-office arrangements, and not in respect of a margin for the irregularities of the packets?—It embraces both.

2517. Mr. *Vivian.*] You stated the time to be 60 hours from Southampton to Waterford by Hobb's Point?—Yes.

2518. Would not a letter from Southampton to Waterford, to be forwarded either by Brean Down or by Hobb's Point, pass through Bristol?—Decidedly.

2519. Then in making a comparison between the two routes, you would have to take your departure from Bristol?—Yes.

2520. Now it has been given in evidence that the time from Bristol to Waterford, by Hobb's Point, is 27 h. 30 m.?—Yes.

2521. How many hours would it require from Bristol to Waterford by Brean Down?—Twenty-one hours.

2522. Now as from Bristol to Waterford by Hobb's Point it requires 27 h. 30m., the difference would be 6½ hours from Bristol to Waterford by Brean Down, and from Bristol to Waterford by Hobb's Point?—Yes.

2523. Then how do you make a difference in the return you have given in of more than 29 hours?—Because in the one case the packets are fitted to the mail.

2524. That is taking it by Brean Down in the most favourable point of view?—Yes.

2525. And making a difference of 29 hours, which is more than the whole time required to go from Bristol to Waterford by Hobb's Point?—Yes.

Lunæ, 9° *die Maii*, 1842.

MEMBERS PRESENT.

Mr. Corry.	Mr. Murphy.
Lord Emlyn.	Sir Denham Norreys.
Mr. Grogan.	Mr. Reade.
Mr. W. Johnson.	Mr. Shaw.
Mr. Miles.	Mr. Stanley.
Mr. Morgan.	Mr. J. H. Vivian.

LORD INGESTRE, IN THE CHAIR.

Mr. *George Stow*, called in; and further Examined.

Mr. *George Stow.*

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2526. Sir *Denham Norreys*.] IN arranging your times for the departure of your mails from Dublin, you would so arrange them as to exclude as few voyages as possible?—Certainly.

2527. Will you be so good as to state the number of times, specifying the dates, from the 15th of June 1841 to the 25th of February 1842, that the mail has been put on board the packet at Birkenhead more than 10 minutes later than the appointed time, stating the causes of such delay?

1841:		
August	1	Heavy train on main line.
—	14	Horses run over ditto.
October	13	Wind.
—	15	Rails slippery.
—	27	Delay in changing carriages at Chester.
—	31	Ditto.
November	7	Slow engine.
—	9	Ditto.
—	13	Ditto.
—	16	Ditto.
—	20	Ditto.
—	22	Ditto.
—	23	Ditto.
—	24	Ditto.
—	25	Ditto.
December	1	Ditto.
—	4	High wind.
—	5	Ditto.
—	7	Slow engine.
—	11	Ditto.
—	12	Ditto.
1841:		
December	14	Slow engine.
—	17	Rails slippery.
—	18	Ditto.
—	21	Ditto.
—	22	Detained by Company's business.
—	23	Ditto.
—	24	Ditto.
—	25	Rails slippery.
—	26	Ditto.
1842:		
January	4	Luggage train in the way.
—	12	Snow.
—	14	Ditto.
—	23	Ditto.
—	25	Rails slippery.
—	27	High wind.
—	28	Ditto.
—	29	Ditto.
February	3	Rails slippery.
—	15	Axle broke near Stafford.

40 times.

2528. Will you refer to the returns, and ascertain the number of times that the coaches have been despatched from Dublin without the mails from England, owing to the irregularity of the times of putting the mails on board at Birkenhead?—Twice. January 25, 1842, owing to the slippery state of the railway from frost; February 15, 1842, crank-axle of engine broke near Stafford.

2529. Has the Post-office made any effort to obtain greater regularity of arrival by the railways?—Yes; every effort has been made. I should state, that upon any loss of time upon either of the railways, it is my duty to call upon the secretary of the railway to explain the cause of such delay.

2530. Do not the periods of arrival at Birkenhead, appearing in this return, show that the mails might be put on board at a much earlier hour than at present were greater exertion made?—I should state, that every effort was made in June last year to induce the Grand Junction Company to run at a greater rate of speed, but they declined doing so in consequence of the line of railway between Crewe and Chester not being thought to be in a sufficiently forward state. I may also add, that an application has been made within these few weeks to the Grand

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Junction Company to increase the rate of speed between Crewe and Chester, and they have consented to increase it by 12 minutes.

2531. What is the distance between Crewe and Chester?—Twenty-one miles. They now take an hour to do it, and they have agreed to do it within 48 minutes.

2532. Is there any delay takes place at present at the meeting of railways belonging to different companies?—At Birmingham there is delay, but only such as is necessary for the business of the two companies: we require not more than 10 minutes. It would be impossible to send any train from London to Liverpool without some delay in changing the carriages, and for the convenience of passengers.

2533. Is there any delay at Chester?—There is a delay at Chester because the Grand Junction Company will not allow their engine to run on to Birkenhead. We tried to do away with that, but were unsuccessful.

2534. There is a delay of some minutes in consequence of changing the engine?—Yes.

2535. Is there any necessary delay for Post-office purposes between London and Birkenhead?—At Crewe it is necessary to transfer the bags from the Birmingham and Liverpool carriage to the branch going from Chester to Crewe.

2536. That is all?—At Birmingham also a short delay is required.

2537. Mr. *Stanley.*] Supposing the greatest exertions were made on the part of the railway companies, at what time could you deliver the mail on board the packet at Birkenhead?—I do not think that any acceleration of speed can be gained, excepting 12 minutes between Crewe and Chester, so far as the Post-office is concerned; the stoppage of 10 minutes at Wolverton could be dispensed with; the time could be curtailed 10 minutes at Birmingham, and six minutes at Coventry, making together a saving of 38 minutes; but my opinion is that if these stoppages were not allowed, it would be impracticable for the companies to conduct their own business; that it would, in short, be necessary to run special trains for the conveyance of the mails.

2538. Mr. *Shaw.*] Will you state what is the average rate of travelling per hour by the railway between London and Birkenhead?—Twenty-one miles per hour, stoppages included.

2539. Mr. *Stanley.*] After the delivery of the mail at Birkenhead, is there time for the embarkation of horses and carriages before the packet starts?—There is not; when the train arrives at Birkenhead we allow five minutes to go from the station to the jetty, and 10 minutes to put the mail on board the steamer. It is impossible to put horses or carriages on board; it is as much as passengers can do to get down in time.

2540. Mr. *Reade.*] On the Great Western Railway is there any delay in despatching the mails from London to Bristol?—Only a short delay at Swindon to change the engine.

2541. *Chairman.*] Supposing the London and Birmingham and Grand Junction lines to merge into one, would there be any necessity for that delay at Birmingham?—I presume some time must be taken to deposit parcels and passengers at Birmingham.

2542. Mr. *Vivian.*] At what rate does the mail travel on the Great Western Railway from London to Bristol?—Twenty-seven miles an hour.

2543. What is the distance?—One hundred and eighteen miles.

2544. And what is the time the mail-train takes on the road?—Four hours 15 minutes.

2545. *Chairman.*] Will you furnish the Committee with the rates of travelling upon the different railways?—

—	RATE PER HOUR, STOPPAGES INCLUDED.	
	Miles.	*Furlongs.*
London and Birmingham	21	–
Grand Junction	22	7
Crewe and Chester	21	–
Chester and Birkenhead	20	–
Great Western (night mail)	27	–
Ditto (day mail)	27	2

Mr. *James Kendrick*, called in; and Examined.

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2546. Mr. *Murphy*.] WHAT are you?—Surveyor of the General Post-office, for the southern district of Ireland.

2547. I presume that embraces Cork?—It does.

2548. And the parts to the west of Cork?—Yes.

2549. How far west does it go?—It includes nearly all Munster and three counties in Leinster, Carlow, Kilkenny and Wexford.

2550. Does it include any portion of Connaught to the west?—None.

2551. It terminates at Clare?—Yes.

2552. Supposing a mail to be despatched from London at the same hour in the evening as at present, say a quarter before nine o'clock, and the other portions of the English correspondence to be timed so as to meet them from the south and west of England, at any port in the Bristol Channel, say Brean Down, do you think the general communication by post, with the western parts of Munster, would be accelerated by that arrangement?—With reference to Cork, it would of course depend upon the hour of arrival at Cork of those mails.

2553. We understand the communication at present between London and Cork is about 42½ hours for letters going by Dublin?—Yes; 24 hours to Dublin, and 18½ hours to Cork.

2554. Now, supposing the Post-office communication to reach Cork in 30 hours, or 32 hours, instead of 42 hours, do you conceive that would be a great benefit to the western portions of the county of Cork and to Kerry?—It would be a benefit to Cork, of course, and to some towns to the west of Cork.

2555. Would it not be such a benefit as to anticipate their correspondence by a day?—To some it would, but not to all; it would give to some their letters a day earlier than at present, and to others an earlier arrival on the same day.

2556–7. Now, would it not be a benefit to those that it would give an earlier arrival to on the same day, though not a day earlier, inasmuch as they would have more time to answer their correspondence?—Undoubtedly it would be a benefit where they could get more time.

2558. Are you not aware that there are considerable complaints made by the mercantile body at Cork of the delay in the arrival of their correspondence from England by the mail under the existing arrangements?—I have heard of such complaints.

2559. Now we have heard that from some cause or other, 89 times in one year the packets despatched from Liverpool have not reached Dublin in time to have the English mails forwarded by the coaches to the interior that same night. I need not ask you whether as a matter of course that does not postpone the correspondence a day more than even under the present system, supposing the mail to reach Cork in 42½ hours?—Certainly, the mail which ought to be due in Cork by the coach, *viâ* Clonmel, at half-past three in the afternoon, would not, in such case, be there until eight o'clock the following morning.

2560. Then in fact for the purposes of business could they, in your judgment, despatch an answer to a letter received at eight o'clock in the morning, until the evening mail?—I should say they would have time to do it by the next despatch, at half-past 12 o'clock on the same day.

2561. Now you have told us that 30 hours would be a benefit, compared with the existing state of things; supposing mails to arrive regularly in Dublin, in your judgment could such a delay as that which now arises by the miss of the mails between Liverpool and Dublin, so as not to be transmitted by that night's mail to Cork, take place if there was a communication from London to Brean Down by the Great Western Railway, and by adequate Post-office steamers from Brean Down to Cork?—That, of course, would depend upon the arrival at Cork. I do not feel myself competent to decide what time might be occupied in the navigation. I take it, the arrival that is assumed would give to Cork the London letters at eight in the morning, which are now due there at half-past three in the afternoon, that is, would give them ready for delivery at eight o'clock in the morning; they would be due, certainly, before that time.

2562. In the morning of the same day that they are now delivered at half-past three in the afternoon?—So I understand it.

2563. That would give the merchants an entire day, and two chances of answering their correspondence, instead of the casualty of missing their correspondence altogether by the late arrival of the mails in Dublin?—Yes.

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2564. Does it not frequently happen that the mail does not arrive in Cork in the winter season in time for them to answer their correspondence on the same day, although it does arrive in Dublin in time for the coaches?—Yes.

2565. At what time are the mails despatched from Cork to Clonmel?—At half-past 12 in the day, and at half-past six in the afternoon. The mail at half-past six in the afternoon is not a direct mail; the coach does not go through Clonmel, it goes through Cahir.

2566. At what time are the mails despatched to Tralee?—At half-past eight in the morning, as soon as possible after the arrival of the coach from Dublin at Cork by way of Cashel.

2567. At what time are the mails despatched for Limerick?—Ten minutes before ten; but the reason of that late despatch is that the towns upon the line between Limerick and Cork are supplied with their Dublin mails through Limerick and not through Cork.

2568. At what time is the mail despatched for Tralee from Cork?—At half-past eight in the morning.

2569. Now supposing the letters to reach Cork at half-past eight in the morning, taking the average to be 34 or 35 hours, giving therefore a margin of five hours and a half or six hours from London, would not that by its time of arrival in Cork enable you to despatch your correspondence for Tralee and all places to the west of Cork at a much earlier hour?—We could not so alter the despatch of the coach from Cork without leaving the letters from Dublin and the east-ward behind.

2570. But could not the mails be arranged from Dublin, so that supposing there was only one mail conveying English letters from Dublin, and there was another mail conveying English letters from the south, the mail which did not convey the English letters from Dublin might be so regulated as to convey the Irish letters for Cork?—There are a great many places depending upon the mail-coach lines, which of course would be affected by the alteration. It is very difficult to answer that question; it would affect everything on the mail-coach lines.

2571. Do you not conceive, as regards those places which would be so affected, that a great deal of that defect would be supplied by the mail which comes at night?—They go by different routes.

2572. I mean by short cross-posts?—Of course it would be quite possible to upset the present arrangement and establish a new one, but it would be a question whether the new would be as good as the present. That is a question which would require consideration.

2573. Of course; unless you know what the proposed system was you could not form a judgment upon it?—No.

2574. Are you aware a great many ship letters come from Cork by ships coming from abroad?—Yes.

2575. And that there are difficulties found from the present insufficient communication in transmitting those letters, which are sometimes of great bulk, to England; has that been within your knowledge?—Yes; there were very heavy mails last winter, which were obliged to be sent by different mails from Cork; they were so bulky they could not be sent by one mail. I do not know of any other difficulty.

2576. Are you acquainted with the mail which goes direct from Waterford to Cork?—Yes, I am.

2577. Are you aware what the amount of English communication is which that mail takes?—Very small, I should think. It takes all the English communication *viâ* Hobb's Point, and the Dublin letters to the towns upon that line.

2578. Is there not a very small Post-office communication, in point of fact, between Waterford and Cork?—By that mail there is.

2579. How are the Youghal letters received from England; do they go by Waterford?—The Youghal letters from England *viâ* Hobb's Point are received by the mail despatched from Waterford at half-past eight in the afternoon, and are due in Youghal the next morning at nine *viâ* Fermoy. Though there is a good deal of time occupied there is no available time lost to the public, for the mail travels at night. The London letters for Youghal are all sent through Dublin.

2580. What is the time consumed in the Post-office communication by the night mail from Waterford to Cork?—The letters despatched from Waterford at eight in the evening are due in Cork at eight o'clock the next morning.

2581. Mr.

2581. Mr. *Reade.*] Is not that a slow mail?—It is not all one mail.

2582. How do the letters go from Waterford to Cork?—They are taken from Waterford to Cahir by the Limerick coach, and are taken up at Cahir by the mail coach from Dublin for Cork *viâ* Cashel.

2583. Mr. *Murphy.*] How long does it take by that channel for a letter to reach Tralee from London?—It is due in the afternoon of the same day it is due in Cork. It goes by Limerick.

2584. At what hour in the afternoon?—Twenty-five minutes past five in the afternoon.

2585. Then those letters are transmitted from Dublin by the Cashel mail, which arrives at eight o'clock in the morning?—They go by Limerick.

2586. The Limerick mail from Dublin takes them?—The mail from Dublin to Limerick, and from Limerick to Tralee.

2587. They do not go to Cork?—No.

2588. Then what letters west of Cork go by the mail from Dublin, which arrives at eight o'clock?—Letters to Innishannon, Bandon, Clonakilty, Rosscarberry, Skibbereen, and Bantry. Macroom and Millstreet are also served with the London and other letters from Cork.

2589. What time does the mail take from Dublin to Cork, specifying each mail?—The Cashel mail takes 21 hours, and the Clonmel mail 18½ hours in summer, and 19½ in winter.

2590. Are both those mails, in your judgment, or either, capable of acceleration?—I should say they are capable of acceleration; at the same time I feel bound to say that in winter it would be difficult to accelerate them, inasmuch as the roads are very heavy and hilly, particularly the Clonmel road.

2591. In your judgment would it be for the benefit of the south of Ireland generally to have a communication with London, and with the south and western parts of England, accelerated by some six or seven hours?—There is no doubt of that; it would of course be an advantage.

2592. Mr. *Shaw.*] Will you state what is the distance from Dublin to Cork by the shortest mail-coach route?—From Dublin to Cork by Cashel is 169 miles, 7 furlongs, and by Clonmel 159 miles, 3 furlongs.

2593. Is either of those the most direct road the mail can travel upon, or do they travel those roads for the convenience of other towns on the line?—I believe the coach between Dublin and Cork, *viâ* Clonmel, travels the most direct road it can, but the other coach goes round for the convenience of some towns.

2594. Can you state the rate of travelling per hour?—The Clonmel coach travels seven Irish or nine English miles an hour in the summer time.

2595. Is that including stops?—Yes.

2596. Mr. *Reade.*] What is the distance from Dublin to Cork by Waterford and Youghal?—One hundred and eighty miles.

2597. Sir *D. Norreys.*] Have you directed your attention to the subject of the southern communication with England, with reference to Post-office purposes?—I have not considered it much with reference to the object of the present inquiry.

2598. Are you prepared to say what towns in the south of Ireland would be indifferent to the question whether the port of departure were Waterford or Cork; how would Limerick, for example, be affected; would Limerick care whether the port of departure were Waterford or Cork?—It would depend upon the hours of arrival at Cork or Waterford respectively.

2599. Allowing an average difference of five hours between Cork and Waterford, would Limerick be affected by the selection of either Cork or Waterford?—Limerick would not derive any advantage unless the London mail arrived at Waterford in time to be despatched thence by the present night mail, and then it would only gain two hours in the morning. It would be due in Limerick at half past five in the morning, but would not be delivered until eight.

2600. The merchants of Limerick have stated themselves, at a public meeting, to be indifferent to the question, have they not?—I have heard it so said, but I never heard any one who was directly interested about it say so.

2601. If Limerick would not be affected by the question, of course all towns to the west of Limerick must be equally unaffected by it?—Certainly.

2602. Should you think Kilkenny would be affected by the question, whichever port was selected, Waterford or Cork, as it would still get its letters from Dublin?—I do not think Kilkenny would be affected in the slightest degree.

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2603. Supposing a direct line of Post-office communication were established between Brean Down and Waterford, do you think Kilkenny would feel interested in the change; would not it still continue to receive its letters by Dublin?—Assuming the mail were to arrive six hours earlier in Waterford than at present.

2604. *Chairman.*] Assuming a letter posted in London at eight o'clock at night on Monday can arrive at Waterford the following night at 12 o'clock, would that he any advantage to the inhabitants of Kilkenny for London letters?—It would be no advantage to them; the mail would be due from Dublin at Kilkenny to he delivered at the same time.

2605. Take the day mail. Supposing the mail to leave London at nine o'clock on Monday morning, and to be despatched from Waterford at noon on Tuesday, would that be any advantage to the Kilkenny people?—They have a day-mail to Kilkenny, which I think would give them their letters on the same day. Letters leaving London at nine o'clock on Monday morning would be due in Dublin on Tuesday morning, and those letters would be due in Kilkenny at a quarter before six the same evening; and if they went by Waterford they would be due at the same time, or nearly so. It would be no advantage to Kilkenny.

2606. Sir *D. Norreys.*] Looking at the map of Ireland, it would appear that the district which would be indifferent to the change or the selection of the port of departure, whether it be from Cork or Waterford, would he that to the north of a line along the Shannon, and extending from Limerick to Kilkenny?—It would be useless to them.

2607. So much of Ireland as is north of a line drawn between Kilkenny and Limerick would be indifferent, generally, as to the selection of Waterford or Cork?—Yes.

2608. Then the district of Ireland which is interested in this question of a southern packet port, is a district of a few miles south of the line now pointed out?—Yes; they would be affected south of that line, partially.

2609. Looking to the district which, as you state, would he affected by the selection of the port of departure, which should you consider, geographically, to he the most central point, with reference to Post-office purposes, Waterford or Cork, assuming all the mails could be accommodated to a packet station, formed at one or the other?—I should say Waterford; if everything were to he suited to the packet station, Waterford would be more central than any other port.

2610. Would not Waterford be very near to the extremity of the district which you stated would he affected by the selection of the port?—Speaking with reference to its position upon the map it is not a central point, hut I speak with reference to the circulation of the mails.

2611. Which would be the most central point for the distribution of letters to all parts of that district which you stated would be affected by the proposed packet station?—I should say that with reference to the number of towns, and the importance of the towns, Waterford would he the most central.

2612. How many miles is Tralee from Cork?—By the mail road Tralee is 64 Irish miles from Cork.

2613. How many miles would it be from Waterford?—It would be about double that.

2614. Mr. *Grogan.*] Is Tralee served by Cork?—No, by Dublin.

2615. Sir *D. Norreys.*] The question had reference to making either Cork or Waterford the point of distribution for all the English correspondence to the south of Ireland, except, of course, that part which would still continue to receive its letters from Dublin, whichever port was selected; do you still continue to think that Waterford would be a better centre of distribution than Cork?—It would depend altogether on circumstances; the hours of travelling of the mail, and the hours of arrival of the packets.

2616. The question assumed that all the mails, north, south, east and west, could be accommodated to the average time of the arrival of the packets?—Then I should say Waterford; the centre of circulation of letters may be very different from the centre on the map.

2617. *Chairman.*] Is your opinion, in naming Waterford, formed upon the ground that the letters for places to the eastward of Cork would, in the event of a packet station heing established at Cork, have to make a return land journey to those places, thereby having a longer sea passage, and also a longer land journey than if the station were at Waterford?—From what I have heard, the passage would

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would be shorter to many of the towns to the eastward of Cork by going through Waterford. If the mails were to be suited at Cork to the arrival of the packets in every direction, of course it would make a great difference. It would extend the circulation towards that line which has been referred to, between Kilkenny and Limerick.

2618. Supposing packets to be established from the Bristol Channel to Waterford, by which letters could arrive in 20 hours from the Bristol Channel, would letters from Falmouth to Kilkenny, in your opinion, go by that communication, or by Dublin?—I should say they would still go by Dublin, because there would be no advantage to be gained by Waterford. They would be delivered in Kilkenny on Wednesday morning either way.

2619. Would it be an advantage to all the towns south of Kilkenny?—If the mails were fitted at Waterford to suit the packet, it would be an advantage to the south; for instance, if the mails were despatched from Waterford at night, they would be due in Cork the next morning.

2620. Would it be an advantage to Cork, and the west of Cork, speaking of the correspondence from the west of England, independent of the London letters?—It would undoubtedly; the mail would be due in Cork the next morning. That answer takes for granted the mails are to be fitted to that packet. But that would upset the system at present, and might be productive of great dissatisfaction as far as the bye circulation of letters in the districts is concerned.

2621. Mr. *Morgan.*] If the present Milford mail were to arrive at Waterford at nine o'clock in the morning instead of twelve at noon, would anything be gained by that?—There would be a gain to certain towns on the line between Waterford and Cork, and to Cork itself.

2622. Mr. *Murphy.*] What would the gain be to Cork itself?—The letters which now arrive by Milford arrive at Waterford at noon, and they remain there till the evening, and they are not due in Cork till the next morning; if they arrive in the morning of the same day that they now arrive at noon, they might be despatched by the direct coach that is due in Cork at night.

2623. What benefit would it be to the Cork people to get their letters at 10 o'clock at night, when business hours are over, instead of eight o'clock the next morning?—In that respect there would be no advantage.

2624. *Chairman.*] Assuming the packet to arrive at Waterford at 12 o'clock at night, so that the letters leaving London on Monday night would be in Waterford the following night, and would be in Cork the next morning, would that be an advantage over the present arrangement through Dublin to Cork?—Then a letter would be due in the morning at Cork, instead of the afternoon, as at present; but that could not be done under the present mail arrangement.

2625. Would not that be an advantage?—Certainly.

2626. What is to prevent it under the present mail arrangements?—The mail at present leaves Waterford at eight o'clock in the evening, and it could leave only an hour later, or not quite an hour later, for the junction of the mail coaches at Cahir comes very close to time.

2627. Suppose the Youghal mail from Waterford to Cork to leave in the evening at a time to fit the packet, would not the letters arrive in Cork the next morning?—The towns on that line are served with their Dublin letters by that coach. We could not leave the Dublin letters behind at Waterford; they are now due there at nine o'clock, and they start at half-past nine.

2628. Mr. *Stanley.*] I think you stated that if you could receive your letters from Dublin about six hours sooner than you do at present, it would be all you desire?—I was asked whether it would be of advantage to receive letters six hours earlier; and I said, of course it would be an advantage to some places.

2629. Would it not be all you desire, receiving letters early in the morning, 36 hours after leaving London?—The question was whether an earlier arrival than the present by six or seven hours would be an advantage to the south of Ireland.

2630. Assuming that a railroad were made to some port in North Wales, and the London letters were received in Dublin by two or three o'clock the next day, might they not be immediately despatched from Dublin and received in Cork by nine or ten o'clock the next morning, leaving 18 hours for the journey from Dublin to Cork?—It is possible the journey could be travelled in that time, but I am not able to speak as to the practicability of effecting such a despatch from Dublin.

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2631. Would not that be all you require in the south of Ireland, inasmuch as it would be no advantage to you to receive letters in the middle of the night?—The delivery at eight o'clock in the morning I should say would be all the merchants at Cork would require.

2632. Then assuming the mails for the whole of the south of Ireland might be received through Dublin in 36 hours from London, would it not be more advantageous than any southern communication through the Bristol Channel?—I should say it would be more certain in consequence of the shorter sea passage.

2633. Mr. *Grogan.*] You stated, as far as Kilkenny was concerned, you imagined that by the proposed new line by Brean Down and Waterford, the letters would arrive in Kilkenny at the same time they now do by Dublin, so that Kilkenny would not get anything by it?—Yes; I think Kilkenny would not get anything by it.

2634. And you said Tralee would continue to be served by Dublin?—Yes.

2635. Do you think if there were an improved line of communication, as suggested, by Brean Down to Waterford, Tralee would be served with its London correspondence through Waterford or through Dublin?—It would depend altogether upon the arrangement at Waterford as to the mails and packet.

2636. Do you conceive that Tralee would, under the improved line, be served by Waterford or not?—Under the present arrangement of the inland mails it would not be served by Waterford.

2637. Of course if you shorten the time by Dublin by six hours to what it is at present, Kilkenny, Limerick, Cork, and all round Cork would continue in its present line of service, and be benefited by that?—That would depend upon whether the mails could be despatched from Dublin six hours earlier than at present. If they were, of course the advantage would be extended to the south.

2638. Independent of the additional certainty?—Of course.

2639. If it is matter of indifference, as it must be to Kilkenny, whether the mail comes from Waterford or Cork, inasmuch as Kilkenny would receive its letters from Dublin in the same time as it would from Waterford, supposing there were six hours gained in the journey from Dublin to Kilkenny, might not the Waterford letters also be six hours earlier?—The Waterford letters would, undoubtedly, be six hours earlier if the despatch from Dublin were six hours earlier. You would then have the arrival at Waterford at three instead of nine o'clock.

2640. Then should you consider it as matter of importance in a Post-office point of view, that there should be a communication with Waterford by Brean Down?—Under such circumstances I conceive it would be no important advantage to Waterford to have that communication.

2641. Mr. *Murphy.*] Do you mean to say that it would not be a very important advantage to Cork if there were a direct communication by Brean Down?—Six hours earlier arrival would be given to Cork also than at present by Dublin, assuming the mail would be due six hours earlier at Cork.

2642. But still do you mean to say that in your judgment you do not conceive it would be an advantage to Cork, and the district around it, that a steamer should be despatched from Brean Down direct to Cork, assuming the mails were to be six hours earlier in Cork than by the present route?—Then they would be due in Cork by nine o'clock in the morning from Dublin, and the delivery from Brean Down would be only at seven or eight o'clock. I should say therefore there would not be a great advantage in the despatch of the steamer by Brean Down.

2643. Suppose the acceleration by Dublin not to take place, would there not be an important advantage to Cork?—Yes; the mail for London would be there at three o'clock in the morning instead of half-past three o'clock P. M., as at present.

2644. You have been asked other questions about Cork, by way of comparison, with reference to Waterford, have you, in estimating that, taken into consideration the comparative amount of correspondence received at Cork as compared with that received at Waterford; which, in your judgment, in a commercial point of view, receives the greatest quantity of correspondence, Cork or Waterford?—I can tell you the revenue of those towns.

2645. Have you returns from those towns by themselves, or with reference to the

the letters they distribute in the districts?—I have returns with reference to the towns themselves, the money received in Cork and the money received in Waterford respectively, upon letters received and sent.

2646. Will you state the comparison of the two?—Cork, 3,399 *l.* for the year ending the 5th of April 1842; Waterford, 1,702 *l.* for the same period.

2647. Have you got an account of the revenue derived from the towns which are served from Waterford and the towns which are served from Cork, under the present system?—I have of the towns in the immediate neighbourhood of Cork and Waterford.

2648. Which is Clonmel served from?—Clonmel is served by Dublin.

2649. I mean those which are served by Cork and those which are served by Waterford; supposing the mail to come from Dublin to Waterford or from Milford to Waterford, I want to know the places which are served by Waterford and the places which are served by Cork by the mail which reaches Cork from Dublin; have you got those returns?—I have the revenue of some towns to the west of Cork, of which I spoke early in the day.

2650. *Chairman.*] If the mail were expedited by six hours as stated, by Dublin, would that bring the West of England correspondence with equal advantage to Cork as the proposed arrangement; suppose the letters from Falmouth to meet the down London mail at Brean Down, and not to go to London, allowing it came straight across from Waterford to Cork, would not that be an advantage to the letters from the West of England to the South of Ireland?—Yes; but six hours' acceleration from Dublin would give Cork the letters from England for delivery at the same time.

2651. Mr. *Reade.*] With reference to the towns in the interior, beyond Waterford, Carrick, Clonmel, and Ross, is there a line of commercial communication with Waterford or any other town; what is the line of commercial communication from Kilkenny to England; where do the exports come to?—I am not prepared to say that positively, but I should think Waterford.

2652. Mr. *Vivian.*] Would it not be a great disadvantage to the South of Ireland, the South of England, and to South Wales, if the direct communication by packets from Hobb's Point, or from some other port in the Bristol Channel, was interrupted?—That would depend upon the circulation of letters that might be afterwards established on the other side; at present of course it would create delays.

2653. Would it not cause considerable delay in the transmission of letters from those different parts of the kingdom?—With reference to South Wales and the towns in the neighbourhood, I should say it would, but I am not prepared to answer about the circulation of letters in Wales; I know nothing sufficiently of that. There are some towns in South Wales, of course, the correspondence between which and the South of Ireland would be delayed, as the arrangement is at present, if the packet communication were abolished.

2654. From Bristol also?—From Bristol we receive very few letters by Hobb's Point.

Mr. *David Napier*, called in; and Examined.

Mr. *D. Napier.*

2655. *Chairman*] WHAT is your profession?—An Engineer.

2656. You have been engaged in building steam-vessels?—Yes, from the very commencement of them.

2657. Have you built steam-vessels for crossing the ocean?—The first that crossed the ocean was made by me.

2658. Have the goodness to state what steamers you first built to cross the ocean?—The Rob Roy was the first that was established for the open sea; and then followed the Talbot, between Holyhead and Howth; and all the first steamers between Greenock and Glasgow and Liverpool, were built by me.

2659. You have given your constant attention to all the improvements in steamers, and you speak from experience and not from theory?—Yes.

2660. Will you have the goodness to state to the Committee what description of vessels you have built?—I made the boiler and principal parts of the machinery of the Comet, the first steamer that was applied to practical purposes in Europe. Almost my entire employment ever since has been constructing steam-vessels.

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2661. Have you built iron steam-vessels?—I have constructed several iron steamers, and consider them superior to wood in every respect.

2662. What is the greatest speed of any vessels you have built?—The Eclipse, built by my sons, two years ago, at present plying from London to Margate, Dover, &c., has been the fastest steamer in England since she was built; her greatest speed, without the aid of wind, is 16 miles an hour.

2663. Do you know the Irish Channel?—I do.

2664. Do you consider that iron steam-vessels would be applicable, say from the Bristol Channel to the opposite shore?—I consider iron vessels most suitable for everywhere and every purpose.

2665. What do you consider would be the average speed of a vessel of 500 tons, and about 250 or 300 horses' power?—I consider it could be made of that kind to attain 16 miles an hour.

2666. The average speed, winter and summer?—The average speed the whole year over would be 14 or 15 miles an hour.

2667. What depth of water would a vessel of that description draw?—Any depth not less than six feet.

2668. Would you consider six feet sufficient to give her sufficient stability in a heavy sea?—Quite sufficient; the only difference is that vessels of little draught of water roll more; I prefer them as a matter of choice to draw eight or nine feet water; but if draught of water is the object, a vessel could be made to answer the purpose very well at six feet.

2669. What do you consider the lowest speed that a vessel of that description could be brought down to in a heavy gale of wind, such, for example, as would make a frigate lie-to under her main topsail, and with a heavy head-sea?—I do not think there is any weather in which she could not make 10 miles an hour, if the men can keep on deck. It would send the sea over her, but she would get through it; in fact there is no limit to the speed.

2670. Do you think a vessel of that description could make her passage with the same certainty as a mail coach?—There is no question of that; a mail coach meeting the same resistance would be as soon retarded as a steam-packet.

2671. Do you think a vessel of that description could cross a bar at the lowest spring tides where the depth of water would be 12 feet?—A vessel could be made to go over that bar at any time. From the great length of steam-vessels, they do not come so near the ground as short sailing vessels do.

2672. And the same vessel would be capable of encountering the ocean?—Yes.

2673. Are your iron vessels divided into different compartments?—Yes. Besides the advantage that iron has over wood, in not being liable to burn or spring a leak, I have turned it to another account, for which I have obtained a patent, viz. making the bottom of the ship the condenser of the steam-engine, by means of which the necessity of using sea-water in the boilers or machinery is superseded, which has hitherto been very destructive to both; besides, a great addition of power is gained, in consequence of nearly the entire power of working the air-pump being saved, which is a part of the apparatus of every steamer, and absorbs nearly one-eighth of the gross power of them, using sea-water in condensation. It is to this invention that we attribute the superior speed of the Eclipse. This construction necessarily obliges a greater strength in the bottom of the vessel than those of the usual construction, consequently a greater degree of safety. Iron vessels of this construction have not only water-tight bulkheads or divisions, but they have three distinct water-tight bottoms, all of which must be damaged from a blow from without, before water can enter into any of the compartments from below.

2674. Can you state to the Committee what would be the probable cost of an iron steam-boat of 500 tons, and from 250 to 300 horses' power?—From 20,000 *l.* to 25,000 *l.*

2675. Supposing a passage of 176 nautical miles, what do you conceive would be a fair average to give to such a vessel to make it in?—I should give an average of 14 statute miles an hour.

2676. What number of packets should you think would keep up a daily communication efficiently at a distance of 176 miles?—It would require three to be going, and a spare one.

2677. Then the cost of the packets, at the outside, would be 100,000 *l.*?—Yes.

2678. You state you have had great experience in the building of steam-boats, *Mr. D. Napier.*

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boats, and you have given a great deal of attention to the improvement of the engines?—Yes.

2679. What is the cost of the engine?—About 50 *l.* per horse power.

2680. What is the cost of the hull?—About 15 *l.* per ton.

2681. You have constantly given your attention to the subject?—Yes, all my life.

2682. And the result of your experience is that a steam-boat, under the most unfavourable circumstances, may be made to go 10 miles an hour?—Yes, more.

2683. Mr. *Vivian.*] Will you allow me to ask your opinion of the screw?—I am doubtful whether it will attain the same speed as the paddle; I have made a vessel lately, in which I intend to sail this week, with the wheels oblique, not exactly immersed, but at the stern of the ship.

2684. Is that a sea boat?—She is going to Dover this week.

2685. What is her size?—About 120 feet long, and 18 feet broad.

2686. What is her power?—About 50 horses power.

2687. Mr. *Corry.*] The lines of a vessel such as you have described going 15 miles an hour, must be remarkably fine, I presume?—Yes, we think they cannot be too fine.

2688. And do you think such a vessel could safely contend against a gale of wind in the Irish Channel?—She is the safest of any description of vessel; the Eclipse goes round the Foreland, where there is sometimes a heavy sea.

2689. *Chairman.*] In a heavy sea, such as is to be met with in the Bay of Biscay, how would she get over that?—If she were allowed to go at full speed, a good deal of sea would get over her, and if they did not like that they would reduce the speed.

2690. In that case she would be frequently on the top of two seas at once?—Yes; but there would be no difficulty in making a steamer to go 10 miles an hour even in the Bay of Biscay. In the Eclipse, if there is a heavy sea off the Foreland, they reduce her speed for their own comfort, not from necessity.

2691. Mr. *Vivian.*] How long has the Eclipse been running from London to Ramsgate?—Two years.

2692. Has it occurred, in consequence of the wind being excessive, that she has not been able to make her passage?—No.

2693. Mr. *Miles.*] Does she go faster than the Little Western?—Yes; faster than any other boat in England.

2694. Mr. *Vivian.*] It is only in the summer months that she runs, I presume?—She runs all the year round. They have stopped in the winter, because they did not find it pay.

2695. Is 16 miles an hour the highest speed you can attain?—I am making one that will go 20 miles an hour.

2696. *Chairman.*] A vessel going to America, what would you give her as the average speed?—There is no limit to speed. They increase the speed every year. I have no doubt vessels might go from England to America in a week, when once they make them large enough with power in proportion. The vessels which now cross the Atlantic have no more power than the vessels going to Glasgow, and therefore they cannot be expected to go so fast.

2697. Mr. *Vivian.*] For vessels of 500 tons, do you not think it would be preferable to have engines of 300 horses' power rather than of a less size?—Yes; the more power the greater certainty.

2698. Is it not better to have power to spare?—There is never any power to spare; the more power there is the more certain it makes the passage.

2699. *Chairman.*] Then you are of opinion that a steamer of that description would run the passage to Ireland at the rate of 14 miles an hour?—Yes.

Mercurii, 11° *die Maii*, 1842.

MEMBERS PRESENT.

Lord Emlyn.	Sir Denham Norreys.
Mr. W. Johnson.	Mr. Reade.
Mr. Miles.	Mr. Stanley.
Mr. Morgan.	Mr. Vivian.

LORD INGESTRE IN THE CHAIR.

Mr. *David Napier*, called in; and further Examined.

Mr. D. Napier

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2700. *Chairman.*] WITH reference to your previous evidence, I understood all the miles you gave to be statute miles, not nautical miles?—Yes.

2701. Will you be so good as to state what number of nautical miles you conceive the average rate of a steamer might be brought to with certainty?—Full 12 nautical miles.

2702. And you think that notwithstanding the heavy weather which may at times be encountered in the Irish Channel, the passage might be performed with a regularity equal to that of a mail coach?—Certainly; there would be no difficulty in it whatever.

2703. Have you given your attention to any of the plans for making harbours of refuge by means of a floating breakwater?—I have never paid particular attention to the plan, but I have seen a description of it, and I am quite certain that such floating harbours would be perfectly efficient to enable vessels to lie in safety and to land passengers.

2704. Mr. *Reade.*] You have never seen one in operation?—No, the plan has never been in operation. I have seen the effect of a raft or spar of wood at the mouth of a dock, for instance, which is the same thing, and it has the effect of making the water quite smooth.

2705. Mr. *Vivian.*] Do you think the floating breakwaters could be moored safely?—There is no doubt of it whatever; if you find one ton of anchor does not do 10 tons will do; it is a mere matter of cast iron, and that is cheap enough just now; it can be made as firm as this house.

2706. Would not the moorings be liable to give way?—Then they must be made stronger; there is no difficulty in holding a ship of any size; if a first-rate man of war were to carry four or five tons of anchor, and to change proportionably, no gale of wind could have any effect upon her. It is clear that weight enough will hold anything.

2707. If one of the sections were to give way it might cause a serious injury with perhaps 200 vessels lying under the lee of the breakwater?—I do not see why they should give way. I am surprised that Government do not try it at Dover. It might be tried in a week, without any expense whatever; if they took logs of wood and bolted them firmly together, they might make a very good breakwater; there are of plenty of chains and anchors in the dock-yards which might be spared for moorings.

2708. Would not the wood work decay?—Wood will waste away in time, but it will take a long time.

2709. Have you ever seen Captain Tayler's plan?—I have seen several plans in different publications, but I saw this plan for the first time in Captain Tayler's hands to day.

2710. Does it appear to you to be a feasible plan?—I think any of them might answer, but they might be much simpler; I think simple logs of wood bolted together would answer the purpose completely.

2711. At what depth under the water?—It might be tried at any depth, nine or 10 feet; that would be matter of experiment.

2712. Captain Tayler proposes 18 feet; nine feet up and down?—I do not think it need be so deep as that.

2713. Sir *Denham Norreys.*] Has not the union of speed with comfort and safety in steam-vessels been the object of builders for many years?—Always.

2714. Have

2714. Have any builders succeeded in making vessels which have gone voyages at the rate which you stated to be possible?—There are none at present, but they are making rapid strides every year in regard to speed.

2715. Then it is some peculiar mode of construction which has been more recently discovered which makes you give evidence of that possibility?—No; it is capable of being done without anything new whatever, by merely increasing the power. It is a simple logical question, increase the power in proportion, and you will always increase the speed.

2716. Has that struck any other builder, or is it peculiar to yourself?—It is a perfect truism, as clear as the sun at noon-day, that if you increase the power in proportion to the bulk you increase the speed.

2717. Has that idea struck other builders?—It is not a new idea, it is acted upon every day. Every gentleman who has a yacht knows that the greater power there is in proportion to the bulk the greater will be the speed.

2718. But still this principle, which you state to be as evident as the sun at noon-day, has not been carried into practical effect, so as to form a vessel which has arrived at the speed which you state to be attainable?—They are acting upon it every year in the boats from Glasgow to Liverpool; every year they build new boats and increase the speed by increasing the power; they have built vessels of larger power, and they have increased their speed invariably.

2719. Have you ever examined the returns of the voyages between Liverpool and Kingstown?—I may have seen them, but I have paid very little attention to them.

2720. There have been some new vessels built for that station within the last two years?—Yes.

2721. If that principle which you have stated be so evident, can you account for its not having been applied to those vessels so as to have arrived at the speed which you think possible?—I think if I saw the vessels I should have no difficulty in pointing out why they have not attained that speed.

2722. Then is that a principle only known to yourself?—Every nautical man knows that as you increase the size of a vessel, with power in proportion, you increase her speed.

2723. Has the material or the lines of a vessel anything to do with the speed?—The finer you make the lines the greater speed you get in all cases.

2724. But is there not a limit to that with reference to the comfort and safety of the passengers?—I do not think there is.

2725. Then your opinion is, that it would be possible to form a vessel so fine that the power of the steam should force her through any storm or any water?—There is a limit to the length on account of the increased friction of the sides, as well as the difficulty of making long vessels sufficiently strong.

2726. Do you not lose buoyancy in proportion as you obtain speed?—We do not.

2727. Must you not give additional length in order to obtain buoyancy in proportion to the fineness of the lines of your vessel?—Length is fineness; you cannot give them fineness without length.

2728. Supposing this to be a cross section of two vessels, one being nearly wedge-shaped at the bows, with straight sides, the other being a section of a vessel with the sides considerably fuller; if you consider the question of the fineness of the bows of little importance in respect to buoyancy, must you not obtain that by a fulness in some other part of the vessel?—Not at all; there is a slight difference between the buoyancy of a full vessel, but it is exceedingly trifling. I have a vessel just about finished which is finer than the Eclipse, and she will be more buoyant and will draw less water.

2729. Mr. *Stanley*.] Are you speaking of iron boats or wooden boats?—Either.

2730. Sir *Denham Norreys*.] Who built the Eclipse?—My sons, under my superintendence; I may say myself; it was in my sons' names.

2731. Was she built of wood or iron?—Iron.

2732. Are there other builders of iron boats?—There are a great number.

2733. Have any of them built boats which have arrived at the same amount of speed?—Several other builders in the river have arrived at very nearly the same result. The Glasgow boats have attained very nearly the same speed.

2734. Do you consider it is possible to argue from the speed of a river boat, the speed that could be attained by a vessel which had to cross a rough and exposed sea like the Irish Channel?—Any resistance a vessel may meet with will retard her

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her speed, but if the sea is smooth, she will go as fast or faster than in a river. If she meet wind and sea, of course the resistance will retard her speed.

2735. Then it is minus the resistance?—Yes.

2736. You have stated that you are indifferent to the fineness of the lines of a vessel, because you acquire sufficient buoyancy by adding to the length?—I did not say so; I said the fineness of the bow has no reference to the buoyancy of the vessel in any respect.

2737. *Chairman.*] You state the fineness of the lines makes very little difference in the buoyancy nf a vessel?—Very little.

2738. Would the fineness of her lines make her pitch or roll more in a heavy sea?—It would make her pitch less.

2739. How would it be with respect to rolling?—The fineness has no connexion with the rolling; the rolling is connected with the depth and breadth, and the vessel's draught of water.

2740. I am speaking of a vessel with fine lines?—The sharper the floor is the less she rolls, and the more water she draws.

2741. Do you think a vessel capable of carrying 300 horses' power, and not drawing more than eight or nine feet water, would roll much at sea?—She would roll no more than any other vessel of the same draught of water; they all roll a good deal.

2742. Do you know the iron steamers between Liverpool and Glasgow; the Princess Royal and others?—I have been on board of them.

2743. Do they not roll very much in a heavy sea?—I am not aware that they roll more than any other vessels of their draught of water.

2744. What is their draught of water?—The Princess Royal, I believe, draws nine feet.

2745. Mr. *Stanley.*] What is their speed?—Thirteen miles an hour, I believe.

2746. Would she make that in heavy weather?—No; when we talk of the speed of a vessel, we talk of her utmost speed in fine weather.

2747. You do not know what she can do in heavy weather?—I do not.

2748. Mr. *W. Johnson.*] Do you know the Merlin?—I have heard of her.

2749. Do you know what her draught of water is?—I do not.

2750. Mr. *Stanley.*] Are you not aware that in the Merlin and Medusa they were obliged to add a false keel on account of their rolling?—I am not; that might proceed from a fault in the construction—in the place of her engine. Another vessel of the same size, with her engine a little lower down, probably would not roll so much.

2751. What is the draught of water of the Eclipse?—Five feet. The Eclipse is not a vessel for the Irish Channel; it only shows what can be done.

2752. *Chairman.*] You say you know the Unicorn?—I do.

2753. Have you seen a table of her speed for a year and a quarter?—I have.

2754. The average speed, by that table, is 11 statute miles, and one-third, taking all weathers; have you any reason to doubt the correctness of that?—No.

2755. Mr. *Miles.*] Is it not possible to have too much power in a steamer?—Quite possible.

2756. What is your opinion of the class of steamers described of 500 tons and 300 horses power?—I think they are very suitable for the purpose.

2757. A vessel of 500 tons could bear 300 horses power?—Yes; any quantity of power.

2758. As much horse-power as tonnage?—A vessel with power equal to her tonnage would be loaded so much that she would make very little more speed in proportion. If you were to put 1,000 horses' power in a vessel of 500 tons, I doubt whether you would get more speed.

2759. You think those vessels would average 12 knots an hour?—Yes; I am quite certain of it.

2760. *Chairman.*] What is the difference in the cost of vessels built of iron and wood?—There is very little difference. The mode I have of making the condenser would make it rather more.

2761. Iron is rather more than wood?—Yes; there is very little difference.

Thomas Assheton Smith, Esq. called in; and Examined.

T. A. Smith, Esq.

2762. *Chairman.*] YOU have had some experience, I believe, in steam-vessels of your own?—I have built 12 vessels altogether, and some of them were steamers.

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2763. You have an iron vessel called Glowworm?—Yes; I also built the Fire-king; she is a wooden vessel.

2764. What is the speed of the Fire-king?—I tried the Fire-king in smooth water, and she averaged 15 miles and about three-tenths an hour.

2765. Could you improve upon that?—I think so.

2766. Did you bear the evidence of Mr. Napier?—I did.

2767. Do you agree in what he said?—I differ from him very much upon some points.

2768. Do you agree in what he said about the form of the bows, and the buoyancy of a vessel?—I particularly object to that from the experience I have had, so far as it has gone.

2769. You have had considerable experience in the Irish Channel, I believe, with your steamer?—I have been pleasuring there for 40 years.

2770. Will you have the goodness to state what you think would be the fair average speed of a vessel of the class described making a passage across the Irish Channel?—I agree with Mr. Napier that there is no limit to speed; we may expect anything in the way of speed from increasing the power of vessels. The Fire-king at present goes between Port Fleetwood and Ardrossan, and I hear she makes nearly 13 miles an hour upon an average.

2771. Then you think 10 miles an hour would not be an exaggerated estimate with vessels of the class described across the Channel?—No, I will undertake to say the Fire-king would go upon any station, wherever it might be, at the rate of 12 miles an hour, three weeks or a month together.

2772. Do you conceive that passage could be made with regularity equal to a mail-coach in point of time?—I should think an average time might be given which would approach to certainty, but of course a mail coach is not so liable to be impeded by wind or other causes. A mail coach might be impeded by snow; but putting that out of the question, the only way you can approach to certainty when you have to do with water is to form an average. A mail coach will average 10 miles an hour, and the average of steam-boats, I am satisfied, might be made above 12 miles an hour.

2773. Do you think in a passage, say of 180 miles, a margin of from three to four hours, would insure regularity?—Yes, if you build your vessels accordingly; not according to the present mode, by contracting with builders, but you must have some one to build your vessels as they ought to be.

2774. Has the Glowworm ever been beaten?—Yes, she has not sufficient power.

2775. Has the Fire-king ever been beaten?—On one occasion the Princess Royal, coming out light, went by her. She is an iron vessel drawing less water, and she went by the Fire-king the first time she was tried. Since that I have heard, and believe it to be the fact, that the Fire-king goes by the Princess Royal when she is loaded.

2776. What was her speed at the time of trial?—I do not know; I do not know the circumstances of wind and tide.

2777. Do you conceive a vessel which could encounter the Irish sea from the Bristol Channel to Ireland, could cross a river bar with 12 feet water?—If built of iron there is hardly any vessel which would be adapted to the purpose of carrying a mail which ought to draw more than 9 or 10 feet water, and consequently 12 feet water at the lowest springs would be sufficient.

2778. What size vessel do you think you could build, having reference to great speed, which you would expect to draw only nine feet water?—If I were asked which would be the most appropriate vessel for crossing the Irish Channel with the mail, I should say the Fire king was exactly the thing; she is feet long, and feet deep, but I should make her considerably broader, because she is six and a half times her breadth in length. I have a plan by which I could very much improve upon it, by making her only five times her breadth.

2779. What is her tonnage?—About tons.

2780. You think a vessel of 500 or 600 tons would be an appropriate vessel for the Irish Channel?—Yes.

2781. Have you any objection to state what you think would be the fair cost of such a vessel?—The Fire-king cost 20,000 *l.*

2782. You think 25,000 *l.* would be quite enough?—Ample.

2783. Built of iron?—The cost is the same whether it is built of iron or wood.

2784. I understand you to say, that a vessel somewhat broader than the Fire-king, in proportion to her length, would be an applicable vessel?—Yes.

2785. Would

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2785. Would she draw more water if her breadth were greater?—Yes; I conceive from her great length, which is the fault of the Fire-king, she rolls rather more than other vessels.

2786. What do you consider the most favourable point to have the wind in for a steamer?—Wind a-beam; of that there can be no doubt.

2787. Has your vessel ever been out in very heavy weather?—Yes.

2788. Can you conceive any state of weather in which such a vessel could not make head against the sea?—Not in the least.

2789. In the Irish Channel?—In any channel.

2790. Mr. *Stanley*.] Are you decidedly of opinion, that for speed and regularity, steamers should be built of iron?—I should, every vessel, from the greater lightness; we consider they are at least one-third lighter than wooden vessels.

Mr. *Brodie M'Ghie Willcox*, called in; and Examined.

Mr. *B. M'Ghie Willcox*.

2791. *Chairman*.] I BELIEVE you are Managing Director of the Peninsula and Oriental Steam Navigation Company?—Yes.

2792. What description of lights do you use on board your vessels?—A triangular light; a red light on the starboard paddle-box, a green light on the larboard, and a white light at the foremast head.

2793. Will you explain the advantage of the lights used in your vessels?—The advantage of the lights consists of showing at the first glimpse, by the shape of that triangle, which way the vessel's head lies.

2794. It has been said a green light is not distinguishable at a distance, is that so?—It is not distinguishable beyond five miles as a green light, but it is distinguishable as a white light; I am speaking of nautical miles.

2795. Then for all practical purposes of preventing vessels running foul of each other, it would be sufficient?—Perfectly so.

2796. In your opinion would it be possible to have a law compelling all steam-vessels to carry the same description of lights?—Decidedly so.

2797. And sailing vessels to carry a white light?—Yes; cases have occurred where a sailing vessel has seen a steamer from 10 to 15 minutes, and a collision has taken place, solely because the sailing vessel has never hoisted a white light, or a light of any kind. A case of that sort occurred about three weeks ago.

2798. You have had considerable experience in steam navigation, I presume?—Yes, for many years.

2799. Are you of opinion that a vessel of 500 tons, and from 250 to 300 horses' power, would, in the open sea, average 10 nautical miles an hour?—Yes, certainly, more than that.

2800. How much more?—I should say 11 miles under ordinary circumstances under favourable circumstances she would go more; of course, under unfavourable circumstances, less. Those are the distinctions we make.

2801. What would you bring her down to with an average gale of wind and a heavy sea?—She would probably fall off to six or seven miles an hour, but the weather must be very severe to do that. There must be what we call a head gale of wind.

2802. What would you consider a sufficient depth of water for a mail-packet of that description to have so as to be perfectly safe, and to encounter the sea she might expect in the Irish Channel?—From seven to eight feet.

2803. The distance from Brean Down in the Bristol Channel is 176 nautical miles; do you conceive a margin of four hours would be sufficient to ensure the arrival of a packet of the description spoken of, at a fixed hour in Waterford or Brean Down?—Yes; quite sufficient under ordinary circumstances. It must be a very extraordinary exception to the rule if that were not sufficient.

2804. Upon the bar of Waterford it is stated the lowest depth of water at the lowest spring-tides is about 12 or 13 feet; do you conceive an iron steam-boat of 300 horses' power could cross that bar at all times in safety?—I have no local knowledge of Waterford, but it appears from the chart that the bar is about four miles from the entrance of the harbour, and I should say, speaking merely as matter of opinion, that under those circumstances there would be abundance of water; if the bar were at the entrance of the harbour, with the sea rolling upon it, it would be very different.

2805. Does the increased length of a vessel make it more unlikely for her to strike?—

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strike?—Certainly, because from her length there is less variation in the depth of water she draws, and she is steadier in the water.

2806. Do you conceive the mail could be carried in a mail steam-packet of 300 horses power with the same certainty that it is conveyed in a coach?—Yes; considerably greater.

2807. Do you know the average speed of the vessels between Liverpool and Kingstown?—The average is about 10 knots—10 nautical miles.

2808. What is the average speed of the vessels with which your Company is now concerned?—Upon the Alexandrian contract the average speed is about nine miles and a half an hour, and upon the Peninsula line eight miles and a half.

2809. Sir *D. Norreys.*] What is the latest built vessel you have?—The Lady Mary Wood; she has run 12 miles an hour under ordinary circumstances.

2810. Was she built in the best manner in which your company could have her built?—The very best manner in which it could be built of wood.

2811. Taking the entire voyage, what should you consider to be her average speed?—She has performed three voyages, and her average speed has been from 11 to 11½ miles an hour.

2812. Upon the entire voyage?—Yes, taking the three voyages together.

2813. Has she had to encounter ordinary weather?—Yes, head winds.

2814. Has she had to encounter bad weather?—Yes.

2815. What is her tonnage and power?—Her tonnage is 615 tons, and her power 250 horses.

2816. *Chairman.*] With regard to cost, what should you say is a fair sum to take as the full cost of a vessel such as has been described, that is, of 500 tons and 250 horses power?—Built of iron, 25,000 *l.*

2817. Sir *D. Norreys.*] How much did the Lady Mary Wood cost?—Between 29,000*l.* and 30,000*l.*, but these fittings are very expensive, for the India passengers, and so on.

2818. Mr. *Stanley.*] Did I understand you rightly to say that the mail could be conveyed with greater certainty by steam-vessels than by a mail coach?—Certainly.

2819. Do you not consider that in the passage between Brean Down and Waterford, there would be a considerable number of days in the year when the average rate of steaming would be very much under 11 miles an hour?—No.

2820. Do you not consider that in the year a considerable number of passages between Brean Down and Waterford would be very much under 11 miles an hour?—No, I should think not, and as frequently it would be the other way.

2821. You do not consider there would be many under that?—No, I should think not.

2822. You say you are very much engaged with steam-boats?—Yes.

2823. Do you not find constantly that your mails are considerably behind their time by the steam-boats?—No, upon the Alexandrian contract they have never varied between Falmouth and Gibraltar, by any chance, more than 12 hours, and that only twice in two years.

2824. Mr. *Vivian.*] That is upon the open sea?—Yes.

2825. Would they not be more subject to detention in the Bristol Channel, from fogs or strong winds?—I should think not; I should think the seas in the Bay of Biscay, in the winter time, would present more difficulties than going near the coast.

2826. Mr. *Stanley.*] How long has your Alexandrian contract existed?—Nearly two years; it commenced on the 1st September 1840.

2827. And during the whole of that period have you never been above 12 hours behind time?—No.

2828. What is the distance?—One thousand and twenty miles. I wish it to be clearly understood that my observations apply to the Alexandrian contract; upon the Peninsula contract we have old-fashioned boats, because we are paid an old-fashioned price.

2829. Sir *D. Norreys.*] You have been a series of passages from Falmouth to Gibraltar in which you have never exceeded 12 hours?—Yes.

2830. How many passages?—Once a month each way: one out and one home.

2831. And you state distinctly that out of a hundred passages of 1,000 miles, you have never been delayed more than 12 hours between Falmouth and Gibraltar?—Yes, and that only twice.

Captain *F. W. Beechey*, called in; and Examined.

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2832. CAN you give any opinion as to the capabilities of the Port of Belfast, for a station for the Scotch mail packets?—Having surveyed the lough minutely I think I may venture to say that I can.

2833. What is your opinion of the late improvement made in the channel by the corporation?—I consider the "new cut," to be the commencement of a plan which, when completed, will be of the greatest advantage to the port of Belfast, as steamers and other vessels drawing 9½ feet water will then be able to get to the quays at any time of tide, and at all hours of the day or night; but without the second cut the first is of comparatively little use, as it can now be approached at night only, during fine weather, by placing lanterns upon the buoys in the channel, and at low water by vessels drawing seven feet or less. Between Garmoyle and the new cut, the channel is narrow and tortuous, and there are two shallow places, having two feet less water than there is in the cut; the first of these occurs at the point where the second cut will terminate, and will thus be removed by the finishing of the canal; the other is an intermediate bend of the canal, which will then be abandoned, so that the second cut will get rid of both these obstructions, and the channel from the cut to Garmoyle, having then only one slight bend, will be rendered perfectly safe and easy at night by a shore-light, in conjunction with the lights on the new pier ends, so that the second cut alone can ensure to Belfast an uninterrupted navigation by day and night, and I look upon its completion as of the utmost consequence to Belfast.

2834. Can you state the depth of water there is in the new cut at low water and at high water?—At low water ordinary spring-tides, or when the surface stands six inches above the sill of the Corporation Dock, there are 9½ feet in the centre, throughout its whole extent, except towards its north-east end, where there was nearly a foot less: but I believe this has been removed since my survey. An ordinary spring-tide rises about 11 feet, so that there will be in the new cut at low water springs about 9½ feet, and at high water about 20½ feet. But the tides at Belfast are much affected by winds, and in the spring and autumn have fallen 1 foot 3 inches below the standard above mentioned.

2835. From your experience, what place would you recommend as the most desirable, safest, and best harbour for the Scotch mail boats to run to?—If this question be limited to a simple Post-office inquiry as to which two ports would afford the most regular and certain transmission of letters between Scotland and the north of Ireland, I should answer at once Cairn Ryan and Larne; but if the question of passage-money and the convenience of passengers is to be taken in connexion, and if the Post-office arrangements can be so managed as to allow of the delay, and at the same time ensure to Derry, Coleraine, and other towns in the north, the immediate transmission of their letters, which they would have by the route through Larne, then I should recommend Belfast and Cairn Ryan; provided the times of arrival at and departure from Belfast occurred always during day-light, and vessels drawing only seven feet water were built for this particular service, as passengers would object to the coach conveyance to Larne.

2836. Whatever harbour you recommend, pray state your reasons for doing so?—My reasons for recommending Cairn Ryan and Larne are, because they are the only two ports which are perfectly safe and accessible at all hours, and in all weathers, which are so short a distance apart, and which may be adapted to the purpose at a moderate expense.

Captain *Arthur Russell*, called in; and Examined.

Capt. *A. Russell.*

2837. Mr. *Johnson.*] ARE you Harbour-master at Belfast?—I am.

2838. How long have you been so?—About two years and a half.

2839. Previous to your appointment, what were you?—Commander of a steam-vessel nine years on the Glasgow and Belfast station, and two years upon the Dublin, Cork, and Glasgow station.

2840. Was it before, or since, you were appointed harbour-master, that the new cut was opened at Belfast?—The new cut has been opened since I was harbour-master.

2841. Will you state how long it is since it was opened?—It is more than a year.

2842. You

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2842. You do not know the exact time?—No, I do not.

2843. What is the entire length of the intended new cut?—Nearly two English miles.

2844. What distance is it from Donegal quay to the head of the island?—Two miles.

2845. How much of that is open at present?—Full a mile; the new cut will take in part of the old river, which will make another mile.

2846. What is the width of the new cut?—Six hundred feet, if I recollect right.

2847. What is the depth at low water?—At ordinary spring-tides there would be 10 feet at low water in the new cut; at very low springs nine feet.

2848. What is the depth at high water?—The average is about 20 feet in ordinary tides.

2849. Since this cut was opened, have vessels been detained in coming in up to the city?—No, vessels of any moderate draught of water are scarcely ever detained.

2850. Can they come up at all times of the tide?—Not with a heavy draught of water.

2851. A vessel of 500 tons, with 250 horses power, could she get up to the quay at all times of the tide?—If she did not draw more than nine feet water she could.

2852. Then, in your opinion, a vessel which did not draw more than nine feet water could get up to the quay at all times of the tide?—She could; and if they go on with the steam-dredge this summer as they did last summer, vessels drawing 10 feet will get up at low water.

2853. Is there sufficient back water in the river to keep the cut clean?—Quite so.

2854. Then have you heard of any complaint of any lodgment being made at the mouth of the cut?—I have not.

2855. Do you know of there being any intention of continuing upon that cut now?—I should think they will if they can raise funds.

2856. Do you consider if Belfast were made a packet station, the cut would be completed?—I have not the least doubt but it will; at the present time I do not know what the corporation mean to do, whether they mean to keep that line on, or to enlarge the harbour about the quays.

2857. Is it the intention of the Belfast corporation to improve the quays before finishing the cut?—I conceive it is; we find no difficulty in getting up now, the only difficulty is want of room when vessels do get up.

2858. Is there nine feet of water at Donegal quay at low water?—No.

2859. What is the depth of water?—The lower part about seven feet and a half, and the upper part about six feet and a half.

2860. Then to what part of the quay can a vessel drawing nine feet water get to?—She can come up to the entrance of Dunbar dock. There is a very good quay there of 300 feet, very well piled, to allow a vessel to go alongside, and it is very safe ground. A vessel drawing nine feet water would lie afloat there at all times of the tide.

2861. During the 11 years you commanded these steam-packets between Belfast and Glasgow, have you ever been prevented making the harbour at Belfast?—Yes, at low water we were often.

2862. Is there any difficulty in entering the harbour at any time of night?—Not the least; I could enter a good half-way up the channel at night, or all the way, if it was well buoyed; at present the buoys are too small, you cannot perceive them at night sometimes: if they had the same beacons in the river going up to Belfast as in the Clyde, vessels could go up without difficulty at any time of the night or tide.

2863. Then could you get up at all times of the tide and night in a vessel drawing nine feet water?—If beacons were put up we should have no difficulty; in Glasgow they are built up with dry stones as large as haycocks, and before you lose one you catch another, which is nearly as good as lights; at Belfast the buoys are very small and only fit for daylight; they are beginning to improve them, when one is lost they replace it by a larger.

2864. Do you know Loch Larne?—I do.

2865. What is your opinion of Loch Larne?—It is a very excellent harbour.

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2866. Which should you say is the best harbour for a packet station, Belfast or Loch Larne?—I should say Belfast.

2867. Will you state your reasons?—First, it will take from Loch Larne to Loch Ryan three hours and a half steaming with a good steamer.

2868. What is the distance?—About 30 miles, and it is about 42 nautical miles to Belfast; I should think one hour and a quarter further would bring a boat to Belfast, and if you go to Larne the coaches take three hours and a quarter to go to Belfast.

2869. What is the distance between Loch Larne and Belfast?—Sixteen Irish, or about 20½ English miles; but it is a very bad road, very billy.

2870. *Chairman.*] Do you know Loch Ryan?—I do, very well.

2871. How would that port suit for the departure of the packets?—It would suit very well; it is a harbour you can enter at all times of the tide.

2872. Do you prefer it to Portpatrick?—Yes, you cannot get out of Portpatrick in bad weather.

2873. Can you go into Portpatrick in a large vessel?—No, I think not, it would be very difficult in bad weather to take a large vessel into Portpatrick, and it is impossible for large vessels to anchor in safety in the harbour.

2874. Do you know Donaghadee?—I do.

2875. Do you consider that a proper packet station?—It is a very unsafe harbour in easterly winds.

2876. What is the largest vessel you consider fit to run between Portpatrick and Donaghadee?—I do not believe that any larger vessels than those they have on the station at present, could be moored in safety in the harbour. I do not think they have more than 10 feet to spare.

2877. What is the distance between Portpatrick and Donaghadee?—Eighteen or nineteen miles.

2878. Do you know the time the present vessels take?—They generally take from two and a half to three hours. They have been more than double that time often. They are very inferior packets for speed.

2879. Are the boats generally supported by the public?—They are not.

2880. And you consider both Portpatrick and Donaghadee unsafe harbours?—Yes, every nautical man will say so; no man in his proper senses would run to either harbour in bad weather.

2881. How do the packets manage?—They are so well acquainted with the harbour, and they generally have it to themselves; they cannot get out of Portpatrick in bad weather; they are obliged to keep the steam up in Donaghadee with south-east or easterly winds, and leave it as soon as they can.

2882. Have you known the mails detained?—Yes.

2883. When you say you think Belfast a preferable harbour, I suppose you speak merely with reference to the town of Belfast?—I spoke with reference to a mail station; the harbour is so safe, and the mail likewise could be landed sooner than by going by the intermediate way of Larne, because they would have steam to Larne and three hours' shore work.

2884. You speak with reference to the letters getting to Belfast?—Yes.

2885. Now be so good as to state how it would affect letters going to other places; say Ballymena and Coleraine?—It would not affect them at all; the letters for Ballymena and Coleraine would be delivered by Belfast as soon as by Loch Larne.

2886. Why need the mail go to Belfast?—It is the safest and best harbour.

2887. Mr. *Johnson.*] Is there a cross-mail from Larne to Ballymena?—I believe not; there is as much distance between Larne and Coleraine as between Belfast and Coleraine.

2888. Is there any difficulty in approaching Loch Ryan?—None whatever; by the chart the same distance which would take you from Loch Ryan into Loch Larne would take you opposite the Blackhead, in Belfast Loch, and one hour and a quarter would take you up to the quay of Belfast from there; I have steamed it in a boat from Blackhead up to the quay in an hour and a quarter often.

2889. *Chairman.*] How long do you think the best description of steam-boats, which make an average of 10 miles an hour, would be running from Loch Ryan to Belfast quay?—She would not be more than four and a quarter, or four and a half hours.

2890. And how long would the same steam-boat be running to Larne?—One hour and a quarter less.

2891. Do

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2891. Do you know the Maiden Rocks?—Yes.

2892. Would they be in the way of running into Loch Larne?—Not at all.

2893. Are they well lighted?—Yes.

2894. Can you see Copeland lights at the same time that you see the Corsewill lights?—Yes.

2895. Can you see the Copeland, the Corsewill, and the Maiden Rock lights at the same time?—Yes.

2896. Mr. *Johnson.*] What depth of water is there in Loch Larne at low water?—You can anchor in safety in 15 feet.

2897. Up to the town?—No; where the vessels anchor in the bay; the town is quite dry at low water.

2898. *Chairman.*] Then what you said with reference to Belfast applies chiefly to the commercial intercourse; do you think it would be the best packet station for commercial purposes?—I think it would be for safety also.

2899. What is the nature of the anchorage in Loch Larne?—It is very good.

2900. Mr. *Johnson.*] What is the nature of the anchorage in Belfast?—Very good; it is all soft blue clay for the most part.

2901. *Chairman.*] You have heard the vessel described of from 500 to 600 tons, and from 250 to 300 horses power, what should you think the fair average speed of a vessel of that description, built of iron, would be?—Twelve nautical miles in ordinary weather. At present they are giving very great power to the iron steamers running from the Clyde, and I have been on board the Princess Royal and the Prince of Wales. She is not quite so large as the Princess Royal, but she has very great power. She is nearly a horse power to every ton register. I do not think she is more than 300 tons, and she is of 250 horses power.

2902. What would she do?—About 14 English miles an hour.

2903. What should you conceive a fair average to give a vessel of that description, taking one time with another?—I should think, one time with another, it would be 10½ knots or 11 knots an hour.

2904. What is the lowest speed you think a vessel of that sort could be brought to in a heavy gale, and a heavy head sea?—I have been brought down to four knots an hour with 200 horses power, in a very heavy gale; but I conceive that vessels of 250 or 300 horses power would seldom be brought down to less than six knots.

2905. And that under very extraordinary circumstances?—Yes.

2906. Do you think, in a passage of 180 nautical miles, if you were to give 10 miles an hour, that is 20 hours, and three hours for a margin, the passage could be made with certainty?—Yes; they could do it very easily.

2907. How many vessels do you think would perform that duty, making one passage each way every day?—For such an establishment the Post-office would require three boats, one to lie-by and two running.

2908. Do you think three boats would be enough?—I do; quite enough.

2909. They must have a spare one in case of accident?—Yes.

2910. But you think three would be enough?—I do, quite enough; if they gave it by contract they would make two do.

2911. What do you think would be the cost of those vessels?—I think you would get them for 20,000*l.* or 22,000*l.* The Prince of Wales was offered to me for 20,000*l.*, and I think she could be got for a little less.

2912. What is her tonnage and power?—She is about 250 horses power, and about 300 tons register, taking away the engine-room; including the engine room, she would measure one-third more.

2913. That is just the description of vessel which would suit from the Bristol Channel to Ireland?—She would; she would be the best vessel that could possibly be got.

2914. What draught of water has she?—With her coals on board, and water in her boilers, she does not draw more than seven feet.

2915. Does she roll much?—No; she has too much speed for that; a vessel of great speed does not roll.

2916. Mr. *Johnson.*] Then such a vessel could get up the harbour of Belfast?—She could.

2917. In the present state of the harbour?—Yes.

2918. *Chairman.*] How long do you think such a vessel would be going from Loch Ryan to Loch Larne?—Three hours.

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2919. How long do you think such a vessel would be going from Loch Ryan to Belfast quay?—Four hours.

2920. There would be an hour's difference?—Yes; with a boat such as I described, I never steamed more than 10 knots; but within the last year or two they have increased the power greatly, and consequently added to the speed.

2921. Do you conceive a vessel of that sort could with safety go over a bar three miles up a river where there is considerable sea, and where the lowest water at spring-tides is 12 feet?—Almost at all times she could; but with a gale of wind right in the harbour, and a heavy sea on the bar, it would not be prudent to attempt it at dead low water. Speaking of Waterford Harbour, I understand the bar is a very narrow ridge, and it might be easily removed if they were to dredge, as they have done at Dublin. The bar at Dublin was cleared away four or five years ago, and has never filled up since.

2922. Mr. *Johnson.*] Are the tides much affected by the winds in Belfast Harbour?—Considerably; northerly and easterly gales have the effect of lowering the tides very much in Belfast, and the south and south-west winds of raising them.

2923. Mr. *Reade.*] What size vessel would you recommend between Loch Ryan and Belfast?—If you give a vessel sufficient power to attain the speed of 10 miles an hour, she must be a vessel of considerable size to carry that power.

2924. Would you recommend so large a vessel as 500 tons to us?—No.

2925. What tonnage would you recommend?—I should say 200 tons register would be sufficient; that would be 300 tons carpenters' measurement. If you speak of register tonnage, you must take about one-third off.

2926. You would recommend a smaller description of vessels than would be used between Waterford and Bristol?—Yes.

2927. Could such vessels be got for about 15,000 *l.*—Yes.

2928. *Chairman.*] Would those vessels perform the duty efficiently?—They would.

2929. How many vessels would it take to run backwards and forwards once a day each way?—Two.

2930. Would two be enough?—Yes; one could do it very easily.

2931. How many have they between Portpatrick and Donaghadee?—I think two.

2932. You think the vessels now employed between Portpatrick and Donaghadee would not be the proper class of vessels?—No, I think not.

Mr. *James Boyle*, called in; and Examined.

Mr. *James Boyle.*

2933. *Chairman.*] ARE you a Civil Engineer?—Yes; I have been practising as such for some time.

2934. Have you examined Loch Ryan and Loch Larne?—I am acquainted with Loch Ryan, but I have been residing at Loch Larne for three years, and have been employed by the Ordnance department in collecting statistical, historical, and topographical information; it was one of my quarters when employed in the north of Ireland.

2935. Can you state your opinion as to the capabilities of Loch Larne as a packet station?—It is accessible under all points, and in any state of the tide, to vessels, even at low water, of springs, drawing 15 feet.

2936. Are you aware of any pier being at Loch Larne?—I am.

2937. Is that approachable at all times?—There is one wooden jetty which is approachable at all times, even at low water spring-tides, for a vessel drawing 15 feet. I am at present engaged in extending another pier, which will accommodate vessels drawing 18 feet water, and which will present a frontage of 70 feet. It will be completed in two months.

2938. Will that be a proper place for the embarkation of carriages and horses?—It will be sufficiently convenient for such purposes.

2939. Are you aware of any vessels having repeated the call at that jetty without difficulty?—The steamer from Port Rush to Liverpool touches at Larne, and has called there twice a week for four years, if not more, and has never experienced any difficulty in approaching it, and there are always vessels of some description alongside of it; they have never been driven away or sustained any injury.

2940. Has the steamer always been able to take in her cargo?—Yes; on one occasion

occasion the jetty had met with some little accident and she did not approach it, but not from any difficulty as to weather or any other cause. Mr. *James Boyle.*

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2941. Can you, from your acquaintance with the localities, give any opinion as to the convenience it would be as regards the distribution of letters, the packet station being at Larne, as compared with Belfast?—It is the nearest port for a considerable distance to the great leading line of road between Belfast and Derry, and I conceive it would be the most desirable place for the landing of letters.

2942. Would there be a great delay from the letters getting to Belfast from Scotland, by being landed at Loch Larne?—My opinion is, that the letters would arrive with a greater degree of certainty and punctuality at Belfast by way of Larne, than if they were landed direct at Belfast.

2943. How long need it take to go by land from Larne to Belfast?—The distance is 16 Irish, or 21 English miles; at present it takes between two and a quarter and two and a half hours; that time will be diminished in consequence of the improvements which are at present taking place on the road.

2944. Did you hear Mr. Russell state that he thought it would take one hour longer to go by steam to Belfast than to Loch Larne?—Yes; my opinion is, it would take nearly an hour and three quarters more, the distance alone being considered.

2945. What is the difference of distance?—The entrance of Loch Larne is nearer to Loch Ryan than the entrance of Belfast Loch is.

2946. What is the distance between Loch Ryan and Loch Larne?—Thirty-one miles.

2947. What is the distance between Loch Ryan and Belfast?—Pursuing the windings of the channel, it is 43 miles.

2948. And is it your opinion that it would take a vessel one hour and three quarters to make those 12 miles?—Yes; the navigation of the Belfast channel being more difficult, and taking into consideration the delay which has been so often experienced in navigating the channel.

2949. A vessel could not go full steam up the channel, is that what you mean?—Yes.

2950. Then I am to understand you that, in your opinion, the letters would get almost as soon to Belfast by landing at Larne, as if they were to go direct to Belfast?—My opinion is, that they would get there quite as soon if landed at Larne as if taken direct to Belfast.

2951. Can you give the Committee any notion of the capabilities of Loch Ryan?—I am not sufficiently acquainted with it to state so precisely as I should wish to do.

2952. Have you any reason to doubt that it might be made a good packet station?—I should state that so far as I know, it is accessible at all times of the tide to vessels drawing from 14 to 15 feet water, and I am also under the impression that at a place called Cairn-ryan, a small village about four miles north of Stranrer, there is a facility for constructing a jetty for the accommodation of mail-packets at a moderate expense.

2953. Have you any idea what would be the expense of making a convenient landing-place at Loch Ryan for mail-packets to land at all times?—It occurred to me that an expense of not more than 4,000 *l.* would be required.

2954. What would be the expense of making a sufficient landing-place at Loch Larne?—A new landing-place for the accommodation of steam-packets, such as the Government might require, would be constructed for from 4,000 *l.* to 6,000 *l.* at Larne; I am supposing one quite unconnected with either of the present piers or jetties.

2955. Mr. *Reade.*] Would there be any extraordinary expense required in making the road good from Loch Larne to Ballymena?—No; a line of road, perfectly new, has just been completed; I dare say by this time it is opened; the inclinations of which, although in a mountainous country, do not exceed 1 in 24.

2956. Mr. *Johnson.*] What road are you speaking of?—It passes immediately westward from Kilwaughter Castle to the westward of the Valley of Glenwhirry.

2957. In one of your answers you spoke of an improvement taking place between Belfast and Larne, what improvements are going on at present?—The ground has been marked out for conducting those improvements, and they may have already commenced; I am aware that the presentment has been passed.

2958. Has it passed the grand jury?—It has.

2959. For the whole line?—There is only a small portion required.

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2960. *Chairman.*] Do you know anything of the approaches to Loch Ryan?—I know the line from Portpatrick to Lake Larne, and from Lake Larne to Glasgow.

2961. There is a railroad from Glasgow to Ayr, is there not?—Yes.

2962. And is there a good road from Ayr to Loch Ryan?—There is; the greatest portion of it is a recently constructed road, at least within a few years, and improved system.

2963. Mr. *Johnson.*] What time would it take letters from Loch Ryan to reach Belfast by Loch Larne?—Assuming the rate of steaming from Loch Ryan to Loch Larne to be 10 miles an hour, I should say from five and a quarter to five and a half hours.

2964. What time would be occupied between Loch Ryan and Belfast, assuming the same rate of steaming?—Under the same circumstances I should say from three quarters of an hour to an hour and a quarter.

2965. *Chairman.*] Do you think any private parties would, in the event of Loch Larne being made the packet station, make the necessary landing-places?—I cannot take upon myself to say that.

2966. You do not know that?—My opinion is that they would not.

2967. Do you know the harbours of Portpatrick and Donaghadee?—I do.

2968. Do you consider them safe harbours and sufficient for packet stations?—By no means, especially that of Portpatrick.

2969. Are they capable of holding vessels of a size sufficient to make the passage at all times?—No; I should say the harbour at Portpatrick is not sufficiently large to contain a vessel of sufficient size.

2970. Have you ever known a packet detained there by bad weather?—I am aware of the detention of the letters by the packet, but not from my own personal observation.

2971. Do you consider the packets themselves sufficient for the service they are employed in?—I do not, considering the sea which sets in, and the winds to which the ports are exposed, particularly Portpatrick.

2972. Is that the general feeling of the public in that district of country?—It is the general opinion of all I have ever met who have sailed by those packets, and the time they require to make the passage is the best proof of it.

2973. You have no local interest I presume in this matter, you have been employed by the Ordnance?—I have been employed by the Ordnance; I have been out of their employment for some time; I am now constructing some works at Larne, on the property of a friend of mine; I have no property myself and no interest in the neighbourhood.

2974. You think it would be a great public advantage if there were a proper description of packets, and proper places of landing made on both sides?—I conceive it would be a public advantage from the opinions of those who have spoken to me on the subject, and also from the number of memorials which have been forwarded upon the subject.

2975. Do you know whether Loch Ryan is easily approachable from the southward, Carlisle and that direction?—It is equally approachable with Portpatrick, because it is the route of the mails from Portpatrick to Glasgow, and of course they must pass through it on their way. It is an excellent road.

2976. Mr. *Reade.*] Do you conceive the station being placed at Loch Larne, would answer the county of Down as well as the station being placed at Belfast?—Assuming the letters would arrive in Belfast in as short a time, and with greater punctuality than they would by being landed at Belfast, it of course must affect the county of Down in a similar degree with Belfast.

Mr. *James M. Rendel*, called in; and Examined.

Mr. *J. M. Rendel.*

2977. Mr. *Vivian.*] WERE you employed by the Postmaster-general in the autumn of 1836, to survey the Old and New Passage across the Severn?—I was.

2978. What was the object of that survey?—The object was to ascertain the practicability of establishing the same kind of floating bridge there, (that is, a flat-bottomed vessel moved across the ferry upon chains) that had been some time before established across the Hamoaze, at Plymouth.

2979. Was the survey made by you?—It was.

2980. To what extent was the survey?—It extended from Aust head to the southern

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southern extremity of the English Stones, embracing the two ferries at Aust Passage and New Passage.

2981. Did you make any report to the Postmaster-general of the result of your survey?—I did.

2982. Was the report accompanied with plans and estimates?—It was.

2983. Have you a copy of the report and estimate?—I have.

2984. Have you copies of the plans?—I have.

See Plan, No. 2.

2905. Do you feel at liberty to furnish the Committee with such copies?—I can lay them before the Committee with the sanction of the Postmaster-general.

2986. Have you the report and estimate with you?—I have.

[*The same were read, as follows:*]

My Lord,

HAVING received your Lordship's directions through George Lewis, esquire, to inspect the Old and New Passages across the Severn, and report my opinion on the practicability of establishing a floating bridge at either of those ferries. I proceeded to make the examination in September last, during the equinoxes. The weather having been more than usually stormy, I had an opportunity of witnessing the difficulties which attach to these ferries under the most trying circumstances. These appeared so formidable that I deemed it necessary before coming to any decision to have surveys and maps made of the sites of both ferries. For this purpose I sent my assistant Mr. Greaves (in whose accuracy I could fully rely), the first week in October; and though I have given the proceedings my active superintendence, yet owing to the difficulties of the work, and the unfavourable season of the year, it is only within the last fortnight that he has been able to furnish me with the necessary information and maps. The maps prepared by Mr. Greaves, and which accompany this report, are, 1st. The river from the "English Stones," to "Oldbury Sands," showing the relative position of the Old and New Passages. 2nd. The site of the New Passage on a large scale, showing, in detail, the rocks, sand-banks, and low-water channels, which so peculiarly characterise the site of this ferry; and 3d. The site of the Old Passage on the same scale, and showing in like detail the rocks, &c. which exist in the line of this ferry. The New Passage, from its being the most direct route into South Wales, first occupied my attention. It crosses the Severn from a point on the Gloucestershire shore, 10 ½ miles from the post-office, Bristol, to Black Rock, on the Monmouthshire shore. The width of the river between these points being 11,200 feet, or $2\frac{1}{10}$ miles at high water, and 8,600 feet, or $1\frac{6}{10}$ miles at low water. It will be seen, on reference to the accompanying maps, Nos. 1 and 2, that two-thirds of the passage lie between the "English Stones" and the "Dun Sand-Bank." From half-flood to half-ebb, six hours each day, or rather each tide, there is sufficient water over these rocks and sands for the largest class of vessels used on the ferry, and there is then no difficulty in making a passage; but from half-ebb to half-flood the boats are necessarily confined to the narrow channel between the rocks and the sand-bank, through which the ebb-tide rushes with a velocity of 7 ½ to 8 ½ knots an hour, and a passage cannot be made against it except in strong and favourable winds. Passing out of this channel, which runs in the line of the ferry, its course lies directly across the head of the "Shoots," another narrow channel, cut through the rocks to a depth of 50 to 60 feet below low water by the violence of the stream. I have ascertained that the flood-tide rushes through this channel with a velocity of 9 to 10 ½ knots an hour, and the ebb from 8 to 9 ½ knots an hour. From the violence of these currents, it often happens that the passage-boats are drawn down the "Shoots" by the ebb-tide and carried round the "Dun Sands" by the flood-tide. These difficulties render the passage at this ferry uncertain for at least five hours each tide. The Old Passage, or, as it is more commonly called, "Aust Passage," is just two miles higher up the river than the New Passage. From the post-office, Bristol, to this ferry, is a little more than 12 miles. Its width at high water from the pier at Aust to that at Beachley is 6,800 feet, or 1 ½ mile, and at low water 4,700 feet, or nine-tenths of a mile.

It will be observed, on reference to the map, No. 3, that the character of the river at this place is much the same both at high and low water, being confined to one channel at all periods of the tide. It will also be seen that the line of ferry is not like the New Passage directly across the stream, but has a considerable obliquity, and although lying between two rocks, called the "Lower Bench" and "Upper Bench," these do not occasion any interruption or uncertainty in the passage of the ferry-boats, for upon the last of the ebb and first of the flood, when there is not sufficient water over them, the passage can be made on either side. By a series of accurate measurements, I have ascertained that the velocity of flood-tide at the site of this ferry ranges from 6 ½ to 8 knots an hour, and that the ebb ranges from 4 ½ to 6 knots. It rarely happens that this ferry is impassable, but a delay of two or three hours frequently occurs when the wind and tide are strong together, for then even the steam-boat kept upon this ferry cannot stem the stream of flood-tide, which here, as at the new passage, is the strongest; for it is one of the peculiarities of the Severn tide, that it flows five hours and ebbs seven. From this brief description of the two ferries the following comparison may be drawn:—

Width of the New Passage at high water, 11,200 feet or $2\frac{1}{10}$ miles.

Ditto of the Old Passage at high water, 6,800 feet or 1½ mile.

Ditto of the New Passage at low water, 8,600 feet or $1\frac{6}{10}$ mile.

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Width of the Old Passage at low water, 4,700 feet or $\frac{9}{10}$ mile.
The Old Passage shorter than the New Passage at high water, 5,400 feet or 1 mile.
Ditto at low water, 3,900 feet or $\frac{7}{10}$ mile.
The strongest current at the New Passage, 9 to 10½ knots per hour.
Ditto at the Old Passage, 6½ to 8 ditto.
Difference in favour of the Old Passage, 2½ knots an hour.
The greatest depth at low water at the New Passage is 60 feet.
Ditto at the Old Passage, 48 feet.
Or less than the New Passage, 12 feet.

The rise and fall of the tide is so nearly alike at each ferry, that the difference is not worth stating; spring tides vary from 42 to 46 feet, and neap tides from 27 to 32 feet. Both Passages are alike exposed to the prevailing winds from S.W. and N.E., but from all other points the Old Passage is the most sheltered. From a careful consideration of the peculiar features of the localities of these ferries, of which the foregoing is a summary only, I am of opinion that it is impracticable, having reference to expense, to establish a floating bridge at the New Passage, but that the Old Passage affords a safe and eligible site for such a bridge, though even there, to insure its permanency and efficiency, its cost would be considerable, as will appear by the accompanying estimates. The site selected as shown on the maps, Nos. 1 and 3, is from St. Tecla's Island, which forms the extreme point of the Beachley shore, to the old pier just south of Aust Head. Upon this line the bridge would be least affected by the currents both of the flood and ebb tide, would be unimpeded by rocks or shallows at all times of tide; the landing-places would be in the most sheltered situations which the shores afford, with rocks for their foundations, and lastly, the bed of the river being free from rocks, the chains of the bridge would not be endangered. The accompanying isometrical view of the proposed design will show in detail the several works I consider necessary, which are as follow: two bridges 150 feet long and 75 feet wide, each worked by two steam-engines of 25 horse power on two chains of two inches diameter. One landing-place on each side, rising from low water to five feet above high-water mark, at an easy inclination; buildings on each plane for sheltering carriages, &c. that may arrive during the intervals of the crossing of the bridge, with residences for the superintendent, toll collectors, and servants of the establishment; lastly, road approaches from Beachley to the plane on St. Tecla's Island, and from the plane at Aust Head to the present road at the Passage Inn; formed under the cliff and secured from the river by a sufficient wall and parapet. It will be observed that I propose to connect the landing-place on the Aust shore with the intended road under the cliff by a suspended roadway; which may require explanation. During the last hour and a half of flood-tide the current sets with great violence along this shore and round Aust Head. A solid pier or roadway run off from the cliffs to low-water mark would throw this current from its present course directly across the landing-place, much to its detriment and the inconvenience of the traffic to and from the bridge; by leaving one large passage between the plane and the shore we shall avoid this evil, and obtain the landing-places on each side without contracting the channel of the river to an extent that could increase its current. In the plan, I have shown the small channel between St. Tecla's Island and the main land stopped with a solid wall, believing it would, in that case, be advantageous. The construction of the plane, however, would decide whether it had better be left open and the road carried over an arch; I have therefore added so much to the estimate for these works as would admit of the substitution of an arch without increasing the total amount. I propose two bridges, finding from experience that it is essential to the uninterrupted accommodation of the public; whilst, by giving opportunity for frequent inspection and immediate repair, the annual disbursements and general depreciation are lessened. In preparing the following estimates, I have supposed the several works to be done in the best possible manner for durability and convenience.

Maps not printed.

Plan not printed.

ESTIMATE.

	£.
Road approach from Beachley - - - - - - - - -	1,156
Walls and embankment across the Sound - - - - - -	10,473
Landing-place on St. Tecla's Island, with buildings, &c. &c. &c. - -	27,301
Landing-place at the Aust shore, with buildings - - - - - -	41,742
Suspension bridge to connect the plane and road approach. - - -	18,856
Road approach under Aust cliffs - - - - - - - - -	4,446
Two bridges complete, with steam-engines, machinery, and chains - - -	27,268
	129,242
Contingencies, Superintendence, &c. &c. - - -	20,000
	£. 149,242

The Annual Disbursements would be as follows:

	£.
General depreciation and incidental repairs - - - - - - - -	879
Fuel, oil, tallow and hemp, for steam-engines, and lighting the bridges and approaches	839
Salaries and wages for superintendent, toll-collector, engine men, &c. - -	441
TOTAL - - - -	£. 2,159

Supposing

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Supposing the bridge and the other works to be constructed and managed in the perfect way contemplated by the foregoing estimates, the accommodation it would afford would be little inferior to a fixed bridge, and there is no doubt that the Passage would become one of the greatest thoroughfares of the kind in the kingdom. For the further improvement of the road into South Wales, a suspension bridge might be easily thrown across the Wye at Hewen's Rock, which with the improvements that may be made in the road from Bristol to Aust, would reduce the distance from Bristol to Newport, by way of Aust, to within 30 miles, or only two miles farther than the route by the New Passage. In conclusion, I have the honour to report that the service of Bulton Ferry might be carried on by a modification of the plan now proposed for Aust Ferry, at a cost not exceeding 10,000 *l.*

I have, &c.

Plymouth, 31 January 1837. (signed) *James M. Rendel.*

2987. Inform the Committee if you are of the same opinion now as at the time of making your report?—I am decidedly so.

2988. Have you since the date of the report constructed further works of the kind you there recommend for the Aust Ferry?—Several.

2989. Has your experience since the date of your report in 1838 confirmed the efficiency and economy of your steam floating bridges?—Most decidedly.

2990. I have reason to believe that Mr. Cubitt, in a letter to a gentleman in Wales, has expressed an opinion upon the subject in the following terms: "With respect to the improvement of the Old Passage, I never yet made a plan for crossing the Aust or the New Passage, at the Bristol Channel; but my notion of the thing, to which you are welcome, together with any further information I can hand on the subject, is as follows, viz.: To carry the roadway from the shore on either side towards the mid-channel upon rough stone piers and arches, founded on the rock, straight or crooked as the rocks might be, and at just such height or level that the highest tides would never reach the summit of the arches; and on reaching the mid-channel, or navigable watercourse, to carry the road down to the edge of the lowest low water on each side, at a slope of 12 to 1, and which or part of which slope would be the only part of the road touched by the tides. Then to cross the tidal or navigable passage by one of Rendel's floating steam bridges as they are called, which he has adopted with so much success at Plymouth and Gosport, and is now doing for the Hoogly at Calcutta. This I take to be the best and cheapest, and most practicable way of improving the Bristol Channel at the lowest possible point without interrupting the flow of the tide or the navigation." Now does the plan, as here proposed by Mr. Cubitt, differ materially from that which you recommend in your report?—Not much; I did not recommend the construction of arches over the English Stones, because I felt that would be obstructing the navigation of the stream, which must raise opposition. I proposed a plan at Aust, where no such necessity for arches occurred, and where it appeared to me the site was, generally speaking, more favourable for the efficient establishment of a communication of that kind than any other part of the Bristol Channel or river Severn.

2991. Was your report favourable to the construction of a floating bridge at the Old Passage?—Decidedly so.

2992. Do you think the plan that is here proposed by Mr. Cubitt, of extending the piers, could be adopted, so as to reduce the width of your floating bridge?—Most undoubtedly, if the parties interested in the navigation did not oppose the plan, on the ground of its being an improper obstruction.

2993. Sir *Denham Norreys.*] It has been objected to this system of bridges, where they have to cross any estuary which is liable to considerable roughness of waves, that there would not be sufficient buoyancy, owing to the weight of the chains, so as almost to throw them under water, and to make the passengers wet and uncomfortable; do you apprehend there would be inconvenience from that cause?—I do not. It is no longer a matter of opinion; in fact, it is not so.

2994. Will you refer to places where it has been in use?—Yes. In the first place, I will refer to the thing as matter of theory. The heaviest chains you can by possibility employ (unless you employ iron uselessly) bear no proportion to the tonnage of the vessel; and you might say precisely in the same way, that a first-rate moored head and stern would be swamped. We all know very well that is not the case; a vessel of this kind rises to the sea precisely in the same way as any other vessel, where her cables are in proportion to her tonnage, would rise, and there is never any inconvenience of the kind mentioned. But I can state the result practically. It has happened in Plymouth, when I have myself been on the top of the Quicksilver mail, which goes from London to Falmouth through Ply-

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mouth, crossing the bridge at Tor Point, that the sea has been so rough that the vessels in ordinary were dragging their moorings, and nothing of the sort supposed occurred; the little surf which was thrown up passed directly over the vessel, and the passengers on the top of the mail coach did not, one of them, leave their seats. She is not wet in the least. That partially arises from the build of the vessel; the side is made to meet the surf and turn it off.

2995. They are flat-bottomed?—Yes.

2996. You do not find, in proportion to the length, a greater buoyancy?—No; none that we have built draw more than three feet water, and they are very buoyant. Those we have built for Calcutta are the largest; they are 98 feet in length and 63 feet in width, and they only draw, with everything on board, chains and all, two feet nine inches water.

2997. Mr. *Morgan.*] Your plan is to cross the Severn from Aust to Beachley?—From Aust Rock to St. Tecla's Island, taking the current obliquely.

2998. Where is that?—At Beachley Head.

2999. Do you propose any means of crossing the river Wye?—I observed in my report, that if a road into South Wales should be a matter of great importance to the Post-office, then it might be prudent to contemplate the construction of a small suspension bridge across the Wye, at Hewen's Rock, which is close to Beachley.

3000. The mail, in that case, would not go through Chepstow?—No.

3001. Will not the piers, which you propose on each side of the ferry, interfere very much, with the rise and fall of the tide, with the flow of the water?—Not in the least, as designed.

3002. Mr. *Vivian.*] Were you employed by the Commissioners of Her Majesty's Woods, &c. in 1838, to make a survey of the Severn, in the neighbourhood of Newnham?—I was.

3003. Did you in consequence make that survey, and to what extent?—I made the survey, and it extended from Framilode Ferry, about 11 miles below Gloucester, to Sharpness Point, which is the entrance of the Gloucester and Berkeley Canal, and including the three passages of Framilode, Newnham, and Purton, embracing a length of the Severn of 13 miles.

3004. What was the result of your inquiry?—The recommendation of a suspension bridge at Newnham.

3005. Have you copies of your plans and report, as forwarded to the Commissioners of Woods?—I have a copy of the report.

3006. What is the date of that report?—Fourteenth December 1838.

See Appendix, No. 16.

3007. Hand it in, if you please?—(*The same was handed in.*)

3008. Has anything been done in consequence of that report?—Nothing.

3009. Now, I observe on the plan attached to that report, that the Cheltenham and Great Western Railway, from the mouth of the Stroud valley, diverges from the north towards Gloucester?—It does.

3010. Supposing a railway were carried from the Cheltenham and Great Western Railway, into Wales, at what point would it turn off?—Supposing a bridge to be built at Newnham, it would, I should imagine, branch off at Stroud, avoiding the circuitous route by Gloucester.

3011. What is the distance from the point where it branches off to Gloucester, to Newnham?—About three miles.

3012. What is the distance from London to that point?—I believe it is about 97 or 98 miles.

3013. Then, supposing that railway to be constructed, the whole distance from London to Newnham would be 100 miles?—About 100 miles.

3014. Do you know the distance from Newnham to Swansea, by the coast road?—I believe about 90 miles.

3015. Are you sufficiently acquainted with the line of country to express an opinion as to whether it is well adapted to a railway?—Yes; I should think better than any other part of that district.

3016. What description of country does it pass through, as regards its mineral productions and manufacturing and agricultural importance?—You can hardly, as regards the commercial and mining interests of that district, get a more favourable line.

3017. Are there any engineering difficulties on the line?—Of course difficulties in the construction of a railway will all be comparative; compared with any other line you could get through South Wales, I should say that would be the least difficult;

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cult; and I would go further and say, compared with the majority of railroads which have been made, there are fewer difficulties upon that line than any other.

3018. Could a railway be carried over the bridge at Newnham without interfering with the navigation of the Severn?—Undoubtedly.

3019. Could a heavy railway train pass over that bridge in safety?—Unquestionably.

3020. Mr. *Morgan.*] Have you ever contemplated crossing the Severn from Aust to the Monmouthshire shore, below the mouth of the Wye, with one of your floating bridges?—I have not, but I think it is very possible to be accomplished. It would be avoiding a suspension bridge, but it would of course be incurring a greater length of passage.

3021. You have never contemplated that, and therefore have never examined the eligibility of it?—No.

3022. Mr. *Stanley.*] How would you cross the Wye above Chepstow, by the railway?—I have not considered that; Mr. Brunel made a survey of the line, and I have seen his drawings.

Mr. *George Stow,* called in; and further Examined.

Mr. *George Stow.*

3023. *Chairman.*] WILL you give us the time it takes a letter going from Glasgow to Belfast, by the present arrangement?—A letter leaving Glasgow on Monday at 4 P. M. would go by railway to Ayr, from thence to Portpatrick by coach, which it would reach at six A. M., and arrive by the packet at Donaghadee at nine, and be in Belfast at about noon the next day.

3024. In the event of a mail establishment being formed at Loch Ryan, can you state the time a letter would take from Glasgow to Belfast by that point?—I do not exactly know the position of Loch Ryan, but I should think there would be no great difference between that and Portpatrick.

3025. Do you receive any official account of the detention of the packets at Portpatrick?—I should not see such returns.

3026. You have an account of the times of arrival of the mail-coach? Yes; I can state the mail from Donaghadee to Portpatrick has frequently arrived late, and we have been obliged to express it up to Glasgow.

3027. Mr. *W. Johnson.*] Can you state that the Scotch mail has frequently arrived late at Belfast?—I cannot state that from my own knowledge.

3028. You have no return from which that appears?—No; that would be a packet return.

3029. Is there any mail between Loch Larne and Ballymena?—I am not aware of that; there is a mail from Belfast to Larne.

3030. Is there a mail from Larne to Coleraine?—I cannot say.

3031. *Chairman.*] Are you aware of any representations having been made to the Post-office, of the inconvenience of the present arrangements between Portpatrick and Donaghadee?—I am.

3032. Do you believe those representations to be well founded?—That question has not come before me officially; I know that in fact such complaints have been made.

3033. Mr. *Vivian.*] Can you furnish the Committee with the time-bills of the Mail from London to Hobb's Point, by Bristol and Swansea, and from London to Hobb's Point, by Gloucester and Brecon?—They are as follow.

LONDON *viâ* BRISTOL and HOBB'S POINT TIME BILL.

M.	F.	H.	M.			
				Despatched from the General Post Office at.	8	0 p.m.
4	-	-	35	Arrived at Paddington at - - - -	8	35
				off	8	55
118	2	4	10	Arrived at Bristol station at - - -	1	5 a.m.
				Per Coach.		
				Despatched from the Post Office, Bristol, at	6	0 a.m.
12	4	1	18	Arrived at Aust passage at - - -	7	18
		-	30	Thirty minutes allowed for crossing;		
				Arrived at Beachley at - - - -	7	48
3	6	-	25	Arrived at Chepstow at - - - -	8	13

(*continued*)

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M.	F.	H.	M.				
16	–	1	39	Arrived at Newport at - - - -		0	52a.m.
12	2	1	17	Arrived at Cardiff at - - - - -		11	9
8	6	–	55	Arrived at the Aubery Arms at - - -		12	4
4	–	–	25	Arrived at Cowbridge at - - - -		12	29
12	4	1	19	Arrived at Pyle Inn at - - - -		1	46
11	7	1	14	Arrived at Neath at - - - - -		3	2
8	2	–	52	Arrived at Swansea at - - - -		3	54p.m.
		–	25	Twenty-five minutes allowed - -	off	4	19
9	–	1	–	Arrived at Pontudulais at - - - -		5	19
17	6	1	58	Arrived at Carmarthen at - - - -		7	17
		–	10	Ten minutes allowed - - - -	off	7	27
				Mail from Gloucester arrived at - - -		3	45
14	4	1	0	Arrived at White Lion Stables at - -		8	36
10	7	1	5	Arrived at Begilly at - - - - -		9	41
		–	10	Ten minutes allowed - - - -	off	9	51
5	7	–	35	Arrived at Milton at - - - - -		10	26
4	7	–	28	Arrived at Hobb's Point at - - -		10	54
272	–	26	54	Time occupied on the journey.			

HOBB'S POINT *viâ* BRISTOL and LONDON TIME-BILL.

M.	F.	H.	M.				
				Despatched from Hobb's Point at - -		12	38a.m.
4	7	–	31	Arrived at Milton at - - - - -		1	9
5	7	–	40	Arrived at Begilly at - - - - -		1	49
		–	10	Ten minutes allowed - - - -	off	1	59
10	7	1	14	Arrived at White Lion Stables at - -		3	13
11	4	1	19	Arrived at Carmarthen at - - - -		4	32
		–	10	Ten minutes allowed - - - -	off	4	42
17	6	1	56	Arrived at Pontudulais at - - - -		6	40
9	–	1	–	Arrived at Swansea at - - - -		7	40
		–	25	Twenty-five minutes allowed - -	off	8	5
6	2	–	52	Arrived at Neath at - - - -		8	57
11	7	1	14	Arrived at Pyle Inn at - - - -		10	11
12	4	1	19	Arrived Cowbridge at - - - -		11	30
4	–	–	25	Arrived at the Aubery Arms at - -		11	55
6	6	–	55	Arrived at Cardiff at - - - -		12	50
12	2	1	17	Arrived at Newport at - - - -		2	7
7	4	–	47	Arrived at Rock and Fountain at - -		2	54
6	4	–	52	Arrived at Chepstow at - - -		3	46
3	6	–	25	Arrived at Beachley at - - - -		4	11
–	–	–	30	Thirty minutes allowed for crossing.			
				Arrived at Aust passage at - - -		4	41
12	4	1	16	Arrived at Post-office, Bristol, at - -		5	59p.m.
				Per Railway.			
				Despatched from the Bristol Station at -		1	0a.m.
116	2	4	20	Arrived at Paddington Station at - -		5	20p.m.
					off	5	30
4	–	–	35	Arrived at the General Post-office at - -		6	5a.m.
272	–	29	27	Time occupied on the journey.			

LONBON *viâ* GLOUCESTER to HOBB'S POINT TIME-BILL.

M.	F.	H.	M.				
				Despatched from the General Post-office at		6	0p.m.
4	–	–	35	Arrived at Paddington Station at - -		6	35
					off	6	55
77	2	–	35	Arrived at Swindon at - - - -		11	30
					off	11	46
18	–	–	45	Arrived at Cirencester Station at - - -		12	31

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M.	F.	H.	M.			
				Per Coach.		
				Despatched from Cirencester at	12	36 p.m.
16	7	1	57	Arrived at Cheltenham Station at	2	33 a.m.
				Per Railway.		
				Despatched from Cheltenham Station at	2	56
7	–	–	18	Arrived at Gloucester at	3	14
				Per Coach.		
				Despatched from Gloucester at	4	15
16	5	1	38	Arrived at Ross at	5	53
10	6	1	3	Arrived at Monmouth at	6	66
–	–	–	5	Five Minutes allowed.		
7	6	–	45	Arrived at Ragland at	7	46
9	2	–	53	Arrived at Abergavenny at	8	38
–	–	–	5	Five Minutes allowed.		
8	–	–	46	Arrived at Pont per Nert at	9	29
12	2	1	17	Arrived at Brecon at	10	48
–	–	–	25	Twenty-five Minutes allowed.		
11	6	1	8	Arrived at Trecastle at	12	19
9	2	–	48	Arrived at Llandovery at	1	7
12	2	1	10	Arrived at Llandillo at	2	17
15	–	1	28	Arrived at the Post-office, Carmarthen, at	3	45 p.m.
				Mail from Bristol arrived at	7	17
				off	7	27
22	3	2	14	Arrived at Begilly at	9	41
–	–	–	10	Ten minutes allowed.		
10	6	1	3	Arrived at Hobb's Point at	10	54
268	7	26	54	Time occupied on the journey.		

HOBB'S POINT *viâ* GLOUCESTER to LONDON TIME-BILL.

M.	F.	H.	M.			
				Despatched from Hobb's Point at	12	38 a.m.
10	2	1	11	Arrived at Begilly at	1	49
		–	10	Ten minutes allowed.		
22	3	2	33	Arrived at Carmarthen at	4	32
				Despatched from Carmarthen at	8	10
15	–	1	28	Arrived at Llandillo at	9	38
11	2	1	10	Arrived at Llandovery at	10	48
9	2	–	58	Arrived at Trecastle at	11	46
11	6	1	8	Arrived at Brecon at	12	54
		–	5	Five minutes allowed.		
12	2	1	17	Arrived at Pont per Nert at	2	16
8	–	–	46	Arrived at Abergavenny at	3	2
		–	5	Five minutes allowed.		
9	2	–	52	Arrived at Ragland at	3	59
7	6	–	45	Arrived at Monmouth at	4	44
		–	5	Five minutes allowed.		
10	6	1	3	Arrived at Ross at	5	52
16	5	1	38	Arrived at the Post-office, Gloucester, at	7	30 p.m.
				Despatched from the Post-office, Gloucester, at	10	30
6	6	–	55	Arrived at Cheltenham at	11	25
		–	7	Seven minutes allowed.		
15	5	1	45	Arrived at Cirencester Station at	1	17 a.m.
				off	1	40
18	–	–	45	Arrived at Swindon Station at	2	25
				Despatched from Swindon Station at	2	35
77	–	2	45	Arrived at Paddington Station at	5	20
		–	10	Ten minutes allowed.		
4	–	–	35	Arrived at the General Post-office	6	5
268	7	29	27	Time occupied on the journey.		

Veneris, 13° *die Maii*, 1842.

MEMBERS PRESENT.

Mr. Corry.
Lord Emlyn.
Sir Robert Ferguson.
Mr. Grogan.
Mr. W. Johnson.
Mr. Miles.
Mr. Morgan.

Mr. Murphy.
Sir Denham Norreys.
Mr. Reade.
Mr. Shaw.
Mr. Stanley.
Mr. Vivian.

LORD INGESTRE, IN THE CHAIR.

Lieut.-Colonel *W. L. Maberly*, Secretary to the General Post-office, called in; and Examined.

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3034. *Chairman*.] WILL you be so good as to state your opinion generally, with respect to the transmission of letters between the South of England and the South of Ireland, as at present existing?—I think, as it at present exists, the communication is as good as it ought to be, looking at the amount and importance of the correspondence.

3035. How are letters sent now from the South of England to the South of Ireland?—With the exception of Cork and Kerry, and the towns falling into that line of communication, which are few, the circulation to Ireland would be by the night London mail to Liverpool and Dublin, and by the Dublin night mail to the interior, and back from the interior to Dublin by the Dublin night mail, then by the packet, which leaves Kingston at 9 a. m., *viâ* Holyhead, arriving in London at 2 p. m. at the Post-office.

3036. Suppose a railroad to be completed to Holyhead, will you state what time would be required from Dublin to Cork, taking 10 hours from London to Holyhead by railroad, and 16 hours from the despatch from the London post-office to the despatch from the Dublin post-office?—Assuming that you could start the London letters from Dublin in 16 hours, then, by the present day mail from Dublin to Cork, *viâ* Cashell, you would get to Cork at 9 a. m. the next day. If the mail is sent by the more direct route from Dublin, it would arrive in Cork two hours and a half sooner.

3037. Now will you trace a letter back from Cork to London?—A letter despatched from Cork at 7 h. 30 m. p. m. on Monday, would arrive in Dublin at 2 p. m. on Tuesday, and, by the above hypothesis, 16 hours, would be in London at 6 a.m. on Wednesday.

3038. Then if a railroad were open to Holyhead as supposed, a letter could be despatched from London by the night mail on Monday, and receive an answer in time for morning delivery on Friday?—Yes.

3039. Thus giving an entire commercial day to Cork?—Yes; and the circulation, as regards London letters, would be perfect. Cork would be in the same position as to the receipt and answering of its letters as London, *i. e.* having its receipt at six in the morning, and its despatch about eight in the evening.

3040. If you were to allow a little more time for sorting, would that materially interfere with the correspondence?—It would be less perfect, but still the people of Cork would have full time to answer their letters.

3041. Mr. *Grogan*.] Would there be any great difficulty in taking the mail from Dublin to Cork by the shortest route timed to the new packet communication?—That would be entirely a mail-coach question. I take it there would be no difficulty in doing it, always leaving expense out of the question.

3042. *Chairman*.] Taking it by the morning mail from London, still assuming the same quickness of despatch from the post-office at Dublin, how would that affect the correspondence?—A letter leaving the London post-office on Monday, at 9 h. 15 m. a. m. under the above supposition, would reach Dublin at 1 h. 15 m.

a. m.

a. m. on Tuesday, and assuming the communication to be continued uninterruptedly, would arrive in Cork at 7 h. 45 m. p. m. on Wednesday.

3043. That would be an inconvenient time for despatching from Dublin, and of no practical use for delivery in Cork?—Certainly not.

3044. Mr. *Murphy*.] You consider that would be useless to Cork?—Yes, I consider so, because it would take an hour before the letter carriers could go out with the letters, which would bring it to nearly 9 o'clock at night, and no business could be done upon it.

3045. *Chairman*.] How would that apply to Londonderry, Waterford, and Belfast?—A letter despatched from London at 8 p. m. on Monday would arrive in Cork at 6 a. m. on Wednesday, in Derry at 5 a. m. on Wednesday, at Belfast at 2 a. m. on Wednesday, and in Waterford at 2 a.m. on Wednesday.

3046. Now take the day mail?—A letter despatched from London by the day mail at 9 h. 15 m. on Monday, would reach Cork at 7 h. 45 m. p. m. on Tuesday, Derry at 6 h. 15 m. on Tuesday, Belfast at 1 h. 15 m. p. m. on Tuesday, and Waterford at 1 h. 15 m. p. m. on Tuesday.

3047. Supposing first class packets to be established from a place in the Bristol Channel, called Brean Down, and the letters from London to be put on board in seven hours, will you trace a letter from London to Cork by that route, assuming the packet goes from Brean Down to Waterford upon an average in 20 hours?—A letter despatched from London on Monday at 8 p. m. would arrive at Weston-super-Mare at 3 a. m. on Tuesday, it would reach Waterford at 11 p. m., and would get to Cork by 9 a. m. on Wednesday, assuming 10 hours between Waterford and Cork.

3048. Now take the day mail to the same places upon the same assumption?—A letter despatched from London on Monday by the morning mail 9 h. 15 m. would reach Weston-super-Mare at 4 h. 15 m., and Waterford at 12 h. 15 m. on Tuesday, and would get to Cork, assuming 10 hours between Waterford and Cork, at 10 h. 15 m. p. m. on Tuesday.

3049. Will you trace a letter from Falmouth to Cork by Weston-super-Mare, with packets fitted to both the night and day mails?—A letter despatched from Falmouth at 4 h. 53 m. a.m. on Monday would reach Weston-super-Mare at 12 at midnight on Tuesday, consequently three hours before the despatch of the packet conveying the London night mail of Tuesday to Waterford. The circulation, therefore, would be very good, as full time would be allowed for sorting the correspondence from the west at Weston-super-Mare. A letter leaving Falmouth at 7 p.m. on Monday would arrive at Weston-super-Mare at 1 p. m. on Tuesday, three hours before the despatch of the packet. Again, there would be plenty of time for sorting at Weston-super-Mare, but the arrival at Cork would be practically useless. The night and day mails to Cork would be delivered together the next morning.

3050. There would be a considerable saving of time by letters from Falmouth for Waterford, Cork, and the intermediate districts, going by Brean Down, on the assumption of packets being established between Brean Down and Waterford, instead of going through London?—There would be a saving of time, but it would not be so very considerable.

3051. Will you trace a letter from Swansea, upon the assumption of a packet from Cardiff to Brean Down, fitted to the London day and night mail?—At present the circulation of letters from South Wales to London (which circulation, unless it is proposed to put on a second communication, must be that by which the letters would pass) is such that a letter could arrive at Cardiff at 12 h. 50 m. p. m.; consequently, supposing a packet communication between Cardiff and Brean Down, and taking three hours as the time occupied by the packet, though I am told it would be less, a letter would arrive at Brean Down at 3 h. 50 m., and consequently in time for the despatch by the day mail.

3052. Take it by the night mail, assuming only one communication between London and Waterford by the night mail and night packet, the project of a day packet being abandoned?—In that case the letter would either be at Cardiff or Weston-super-Mare 12 hours, supposing the present arrangement should continue.

3053. Would there be any detention as to letters from places to the west of Cardiff to London, by crossing over from Cardiff to Brean Down, upon the above supposition?—No; there would be no detention as far as their arrival in London;

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London; they would lie several hours, however, at Weston-super-Mare until the London night mail came up.

3054. Then if the letters from South Wales were made to fit the night despatch, instead of the day despatch, would there not be a gain as to the letters for London from places west of Cardiff?—Yes, there would; they would be posted later, but you would cut them off from Liverpool and the north.

3055. Mr. *Vivian.*] Is not the transmission of mails by water always subject to irregularities?—Certainly.

3056. So that you prefer sending your mails by land, where it can be done, rather than by water?—I think myself the best line from London to South Wales, if you could get mail-coaches, is by Gloucester, but there are various considerations interfering with that; one is, that Bristol is as it were the capital of South Wales, and therefore it is extremely desirable to maintain a communication between Bristol and South Wales.

3057. Should not a communication with the metropolis be the first consideration?—I am not prepared to say that in all cases; I doubt whether, as regards Wales, the communication with Liverpool and Manchester would not be considered almost as important as the communication with London.

3058. Is not the correspondence between South Wales and Liverpool and Manchester conveyed at present by way of Gloucester?—Yes; the lower line communicating at Chepstow with the mail from Bristol.

3059. Are not the letters from the Southern line to Liverpool forwarded from Chepstow to Gloucester?—By way of Gloucester and Bristol, inasmuch as the Gloucester line is connected with the Bristol line at Chepstow.

3060. The letters from the southern part of the Principality to the north do not pass through Bristol?—They do not at present.

3061. And therefore if there were a direct line from South Wales to London, the mail to the north would branch off at Gloucester, as at present?—Yes.

3062. And the communication with London would be over the bridge at Gloucester, and not subject to the irregularities of water conveyance?—Yes.

3063. Have there not been complaints made by all the towns on the line of road from Chepstow to Carmarthen against the mail being conveyed over the Old Passage?—There have been complaints from some of the towns.

3064. Can you name those towns?—I cannot at this moment.

3065. Are there not several petitions now before the House of Commons complaining of the defective state of the Old Passage?—I do not know.

3066. And would not the irregularities in all probability be much greater if the mail were conveyed across an open channel, the breadth of which is 10 miles, (as it may be opposite to Cardiff), than if conveyed across the Old Passage, which is only of the breadth of a mile and a half?—I know nothing of the sea communication or of the ports in question, and therefore I can give no opinion upon the subject; as a general principle, certainly, sea passages are objectionable where they can be avoided.

3067. Could the mails from South Wales to London be conducted with that regularity from Cardiff to Brean Down, that they could over the Old Passage if it were improved?—I should think not.

3068. Now will you state the time it would require to convey a letter from Swansea to fit the night mail to Waterford by Brean Down?—Supposing the mail through Wales to be the London night mail, continued by packet from Cardiff to Brean Down, it must arrive at Weston-super-Mare at 12 midnight, consequently must have been despatched from Swansea at 3 or 4 p.m. on Monday; it would be at Waterford at 11 p.m. on Tuesday, and at Cork at 9 a.m. on Wednesday.

3069. Take it by the day mail?—A letter despatched from Swansea at 7h. 40m. a. m. on Monday would reach Waterford at 12h. 15m. p.m. on Tuesday, and Cork at 10h. 15m. p. m. the same night.

3070. Will you trace a letter from Swansea to Waterford by Hobb's Point by the present arrangement?—A letter despatched from Swansea at 3h. 54m. p. m. on Monday, reaches Pembroke at 11h. 29m. and arrives at Waterford at 12 at noon on Tuesday, and at Cork at 8 a. m. on Wednesday morning.

3071. Then there would be an entire day lost?—Practically speaking it takes three days.

3072. Then a letter which would arrive at Waterford by Hobb's Point at 12 at noon would, if conveyed by Brean Down, arrive there at 11 at night?—As compared

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pared with Hobb's Point, practically speaking, Swansea would be in a worse situation by having a letter sent by the night packet from Brean Down to Waterford.

3073. Commercially speaking, it would lose a day?—It would lose some hours.

3074. Will you trace the return back from Cork and Waterford to London by Hobb's Point?—A letter despatched from Cork at 5 p.m. on Wednesday would reach Waterford at 3 a.m. on Thursday, Brean Down at 11 p.m. on Thursday, London at 6 a.m. on Friday, and Swansea at 5 a.m. on Friday. This is the shortest possible time; it might be modified by other considerations.

3075. Take the back circulation by the day mail?—A letter timed to the London day mail on its return would leave Cork at 12 at midnight on Wednesday, would reach Waterford at 10 a.m. on Thursday, and would reach Weston-super-Mare at 6 a.m. on Friday, reaching London at 1 h. 45 m. p.m., and Swansea at 3 p.m. on Friday. A letter leaving Waterford at 12 at noon on Wednesday would arrive at Swansea at 7 h. 40 m. on Thursday.

3076. Will you have the goodness to trace a letter from London to Cork by the existing line, by Bristol, Hobb's Point, and Waterford?—A letter despatched from London at 8 p.m. on Monday would arrive at Bristol at 1 a.m. on Tuesday; it would be despatched from Bristol at 6 a.m., arriving at Pembroke at 11 h. 29 m. p.m.; at Waterford about noon on Wednesday; and at Cork, through Cabir, by the Dublin and Cashel mail, at eight o'clock a.m. on Thursday.

3077. Will you trace the circulation back from Cork and Waterford?—A letter despatched from Cork at 6 h. 30 m. p.m. on Thursday, would reach Waterford at 5 h. 30 m. a.m. on Friday, and would be despatched from Pembroke at midnight on Friday, reaching Swansea at 7 h. 40 m. a.m. on Saturday, and London at 6 a.m. on Sunday; *i. e.*, practically, Monday morning.

3078. Supposing the Pembroke mail were despatched from Bristol at two o'clock in the morning instead of six, at what hour would it arrive at Hobb's Point?—At 7 h. p.m.; *i. e.*, four hours earlier than at present.

3079. And supposing that the passage from Hobb's Point to Waterford could be made in 11 hours instead of 13 hours, as at present, at what hour would that letter arrive in Waterford?—At 6 h. a.m. the next day.

3080. Supposing that four hours could be saved in crossing the Old Passage, and two hours in crossing the Channel, with more efficient packets, at what hour would the mail become due at Waterford in the morning?—Six hours earlier than the present time; *i. e.* at six o'clock in the morning.

3081. And if the mail were forwarded, as has been proposed, to Cork, at what time would the letters reach Cork?—In 10 hours, namely, 4 p.m.

3082. That would be about the time of the arrival of the mail from Dublin at present?—A little after.

3083. Could not the arrangement which is here proposed be adopted, without incurring any considerable outlay beyond that of the improvement of the Old Passage?—I should say, certainly not. I do not think you would get a mail to work out of Bristol at that hour.

3084. From what cause?—Because it would be so difficult to find contractors. We have never yet been able to do it. One of the stipulations in the last mail contract was that they should not start before six.

3085. Is it not a first principle with the Post-office to forward the letters with the least possible delay, and particularly on the main lines of road?—Not in all cases, and certainly not in this.

3086. Is there any other instance in the kingdom of a mail being detained five hours upon a main line of mail communication, such as that between the metropolis and South Wales and the South of Ireland?—I cannot call any instance to my recollection at the present moment. The reason of that detention is the Liverpool and Manchester correspondence, which would otherwise be detained 24 hours. I am confident that if the towns in Wales were to petition the Postmaster-general to sacrifice their Liverpool and Manchester correspondence by delaying it, in order to obtain an acceleration of their London correspondence, he would most willingly concede the point; but as my own opinion is that the Liverpool and Manchester correspondence is almost of equal importance to that which is conveyed from London, the question for the towns in South Wales is, whether they choose to have their London mail delayed three or four hours, that it may carry on the correspondence from Liverpool, Manchester,

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Manchester, and the manufacturing districts in the north, or to have that correspondence delayed 20 or 21 hours, for the mere acceleration of the London correspondence by two or three hours.

3087. Could not arrangements be made by which the Liverpool letters might be brought down to meet the mail four hours earlier, the bags being conveyed by the mail trains from Liverpool to Gloucester?—Certainly not; the correspondence is that which is brought by the up London trains from Scotland, and the manufacturing districts of the north generally, consequently you must either derange the times of those trains, or put on other mails to bring that correspondence from Gloucester and Bristol.

3088. Do not the objections on the part of the contractors to start from Bristol at an earlier hour, arise from the defective state of the Old Passage, by which the passengers are subjected to the inconvenience of being conveyed across the ferry in an open boat?—I believe they do, but I should state that in all mail-coach questions, directly you attempt to start a mail in the middle of the night, the terms become exorbitantly high.

3089. Mr. *Reade.*] How much per cent. additional?—I should say, five or six times; but it is almost impossible to calculate.

3090. Mr. *Vivian.*] Would not the passage of the Severn be greatly facilitated if it could be effected at all times in a steam-boat?—There is no doubt of that. That, again, becomes a question of expense.

3091. Are there not four mails conveyed across the Old Passage?—Yes.

3092. What is the present allowance made by the Post-office for the conveyance of those mails?—£. 150.

3093. Do you consider the allowance now made by the Post-office of 150*l.* for the conveyance of four mails an adequate remuneration to the proprietors, so as to enable them to convey the mails across in proper boats?—I do not know what the expense of doing it is.

3094. At the time the mail was removed from the New Passage to the Old Passage, was there not an understanding on the part of the Post-office that the mails should be conveyed across in steamers from Beachley to Aust?—I really do not know.

3095. Mr. *Morgan.*] May I ask you if it is your opinion that the present line of communication from Bristol, through South Wales by Hobb's Point to Waterford, is, for the transmission of the mail, upon the whole, the best suited for the convenience of all the various places and parties interested in the communication to the South of Ireland?—I should say myself, that at present the whole use of the Hobb's Point communication, *i. e.* the packets, is confined to the district that lies westward of a line between Worcester and Bristol, comprising South Wales chiefly, and Waterford, and the district of country 40 or 50 miles round Waterford. I should say it is confined almost entirely to the correspondence between those districts of country; and that as regards the rest of the kingdom, you may say it is nearly useless.

3096. Mr. *Vivian.*] Would it be so confined if the communication was improved; is it not susceptible of such improvements as would make it more generally useful to the public?—I do not think much more.

3097. Mr. *Stanley.*] What portions of England and Ireland would derive peculiar benefit from the proposed line of communication between Brean Down and Waterford?—I should say the correspondence between the towns in the West of England and Cork and Waterford, and the neighbourhood connected with them, would be benefited by that communication. The greater part also of the towns upon the Great Western Railway, and a great portion of Hampshire, Somersetshire, Devonshire, and Cornwall.

3098. With reference to your last answer, can you state whether the amount of the correspondence is very large between those points, or what the average receipts from letters would be?—I hold in my hand a return of the receipts from a number of towns in Wales and in the West of England, and I see the number of letters for a week from all these towns for every part of Ireland is only 5,741. Of course none of the correspondence to the North of Ireland would be conveyed by the proposed packets; only a portion therefore, say perhaps one-third or 2,000 letters per week, would go by the new line of packets, and 2,000 letters per week, at a penny a letter, would be eight guineas per week; consequently the value of the correspondence conveyed would be 400*l.* a year, and taking the same sum back, the whole correspondence would be only 800*l.* a year.

3099. Do

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3099. Do you think then there would be a sufficient or adequate advantage in maintaining an expensive packet station, as proposed, at Brean Down?—Certainly not.

3100. Would it not simplify your Post-office arrangements, be a great saving of expense, and be a great advantage to the South of Ireland and England, if a line of communication were made between London and Dublin in 18 hours, and the separate stations from Liverpool and Milford done away with?—With reference to Milford, I think so certainly; with regard to Liverpool, I do not know what to say about the second communication. Liverpool is now the port of Dublin, and I think you would always require a communication between Liverpool and Dublin, which, under such circumstances, could be maintained very cheaply.

3101. You would give up the double line of communication by Liverpool?—Yes, assuming a communication with Dublin by means of Holyhead or any point in Wales in 18 hours, one of the communications with Liverpool would be useless.

3102. Then you would maintain the contract at 9,000 *l.* a year?—Yes; or very likely it might be done at a cheaper rate.

3103. Would you not by that means save the very expensive night line that you are obliged to keep up at Liverpool?—Certainly; if you could arrive in Dublin by way of Holyhead in the same time that you now arrive *viâ* Liverpool, I should certainly recommend the Holyhead line to be taken in consequence of the greater certainty of the sea passage.

3104. Mr. *Morgan.*] Supposing the present line of communication, the South of Ireland by Hobb's Point, were abandoned, and the packets suppressed, would not the whole of South Wales suffer very great inconvenience and be altogether thrown out?—There is no doubt South Wales would suffer in its correspondence with Waterford and Cork, and the South of Ireland generally; but when I measure that loss and inconvenience by the small quantity of correspondence conveyed, which by the returns only amount to 300,000 letters per annum, I do not think the advantage of keeping up such a communication compensates the country for the great expense it goes to in the maintenance of the Milford packets.

3105. Then it is simply looked upon as a matter of expense, and not as a matter of general convenience?—That is the only way the Post-office can regard the subject; any other view is for the general government.

3106. *Chairman.*] Would the inconvenience to South Wales be so great if the proposed line of packets were established from Cardiff to Brean Down, and from Brean Down to Waterford, as if the Milford line were abandoned and nothing substituted?—No doubt the inconvenience would be considerably lessened.

3107. Mr. *Morgan.*] Would not very great inconvenience be felt in consequence of all passengers and letters having to travel back to Brean Down in order to return to Ireland, making two sea voyages, one of which would be nearly double in point of length, and double in point of expense, with reference to the present voyage from Milford to Waterford?—Certainly.

3108. Mr. *Vivian.*] Would you not recommend, under any circumstances, that a southern communication should be maintained?—I am not prepared to say that.

3109. Mr. *Morgan.*] If the southern communication is to be continued, should you think the present communication better than the passage from Brean Down?—I should say so under all the circumstances, unless the whole of South Wales could, by fresh arrangements, be connected with the packets from Brean Down to Waterford; at the same time, I fairly own that my opinion is chiefly based upon considerations of the expense of the communication, and of the small amount of the correspondence compared with the expense which would be carried by it.

3110. Mr. *Reade.*] Does the whole of the Irish correspondence with England pay the expense of the establishment?—Last year I think not; this year the sum of 3,000 *l.* has been paid into the Exchequer; perhaps this year the receipts will be a little more than the expenditure, but scarcely more than that.

Lunæ, 23° *die Maii*, 1842.

MEMBERS PRESENT.

Lord Emlyn.
Sir Robert Ferguson.
Mr. Grogan.
Mr. Johnson.
Mr. Morgan.
Mr. Murphy.
Lord Newry.
Sir Denham Norreys.
Mr. Reade.
Mr. Shaw.
Mr. Stanley.
Mr. Vivian.

LORD INGESTRE, IN THE CHAIR.

Lieutenant-Colonel *W. L. Maberly*, called in; and further Examined.

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3111. Sir *D. Norreys*.] IN reference to an answer of yours upon the last day of examination (3047), upon the supposition of a packet station being established at Brean Down, you have brought your letters from London, despatched on Monday night at eight p.m., to Cork by nine a.m. on Wednesday morning?—Yes.

3112. Is that upon the presumption of a passage of 20 hours?—Yes.

3113. Supposing that Waterford were established as the point of distribution for all English correspondence to the South of Ireland, would there not be a certain margin requisite for irregularities, so that the coaches could not in reality be despatched in what is stated to be the average passage of 20 hours?—I really do not know what the average passage from Brean Down to Waterford would be; but supposing it were 20 hours, I should say a margin of three or four hours would be absolutely necessary, over and above that 20 hours before the departure of the mails, in order to prevent a large mass of correspondence being left behind on a great many occasions. If the average be 17 hours, which I am now told by an honourable Member is a nearer approximation to the actual state of things, then I should say 20 or 21 hours would be about the actual time for the despatch of the mails.

3114. If you allowed a margin of four hours upon the 20 hours, which was taken as the average passage in your previous examination, that would bring the delivery of letters in Cork to one p.m., would it not?—Certainly.

3115. If you were now arranging the despatch of the mail-coaches from Dublin to the interior, and had no reference whatever to any correspondence but the English correspondence, what proportion of the arrivals of that correspondence would you run the risk of leaving behind?—As I understand the question, it seems to relate to what margin practically the Post-office should give for the arrival of the packets. The margin at present from Liverpool to Dublin is about three hours, taking the average passage at about 12 hours. When Liverpool was first established as a packet station, the mails in Ireland started from Dublin at seven p.m.; as the packet did not get from Liverpool till somewhere about half-past seven a.m., consequently, by putting the mails back from seven p.m. till nine in Dublin, we had a margin of only an hour-and-a-half. By adopting Birkenhead, and making other arrangements, which have been, it is true, expensive, but which the Post-office did not object to, inasmuch as they thought expense ought not so much to be considered upon the main communication between England and Ireland, we have now made that margin of an hour-and-a-half three hours; and looking at the returns, completed up to about the 14th instant, I see that the number of times that the packet has failed to arrive in Dublin since the 14th June 1841, when the Crewe and Chester and Birkenhead Line was first employed, is about 66 as compared with 104 in the corresponding previous year. As we shall get a still further acceleration upon the Crewe and Chester Line of about 10 or 12 minutes, I hope that the mails will always arrive in Dublin in time to be despatched into the interior, except in those extreme cases of very bad weather or accident, when the passage will be so much longer than average passages that it would be quite impossible to detain all the mails in Dublin, and to delay the Dublin correspondence for the interior, without inflicting much greater injury in Ireland,

Ireland, than would be counterbalanced on the other hand by the acceleration of the English correspondence.

3116. When you have attained this acceleration of 10 minutes on the Crewe and Chester Line, will you state what will be the time allowed by the Post-office between putting the mails on at Birkenhead and the despatch of the coaches from Dublin?—It will be about 15 hours 6 minutes, or a little more than 15 hours.

3117. Then you would consider 15 hours 6 minutes as not more than a reasonable time for that voyage?—I should think so.

3118. The distance from Liverpool to Kingstown is stated to be 120 miles?—Yes.

3119. Might not, therefore, 15 hours be considered as the Post-office time for doing that distance of 120 miles?—Certainly.

3120. As you require 15 hours for 120 miles, would you apply that rule to a longer voyage?—Certainly, under the same circumstances.

3121. Would you apply that rule to the passage from Brean Down to Waterford, supposing it to be 180 miles?—Certainly; but what the margin should be would be decided by experience.

3122. It has been stated by Captain Evans, who has been examined before this Committee, that if 10 miles an hour were taken as the average of the passage between Liverpool and Kingstown, he would not allow more than an average of eight miles, for the same class of vessels, on the passage between Brean Down and Waterford, on account of the greater exposure of the passage. Now, if eight miles an hour were taken as the Post-office average between Liverpool and Kingstown, you would not feel yourself justified in arranging a margin for the despatch of the inland mails, calculated upon the same rate as between Liverpool and Kingstown, but would allow a greater margin, owing to the greater exposure of the voyage?—I should say, if the speed between Liverpool and Kingstown were reduced from ten to eight, that is to say, if the average passage were 15 hours instead of 12, the mails ought not to be sent by Liverpool.

3123. Mr. *Shaw.*] I presume, in every case, the longer the sea voyage the greater must be the proportional margin allowed?—Certainly.

3124. Sir *D. Norreys.*] If you find that practically, for Post-office purposes, they allow no greater speed than eight miles an hour in the voyage between Liverpool and Kingstown; and if Captain Evans be correct in stating that, from the exposure between Brean Down and Waterford, the packet would make her voyage at least two miles per hour slower than in the former passage, would you not allow a considerably greater margin for that irregularity in arrival upon the Brean Down voyage than you would upon the Liverpool voyage, in proportion to their length?—I should think you would require a greater margin, but whether the margin would be considerably greater must entirely depend upon the result of practice.

3125. If you were now arranging the despatch of the mail-coaches from some point of distribution in Ireland, confining your observations solely to the English correspondence, on what number of days should you think it reasonable to run the risk of leaving the English mails behind?—That is a very extensive question, and a very difficult one to answer: much would depend upon the amount of the local correspondence from the place in question to other places in Ireland, and it would then become a question with the Post-office as to the quantity and amount of Irish or other correspondence which would be detained, as compared with the quantity and amount of correspondence which would be arriving from England. If the Irish correspondence were of infinitely more importance than the correspondence which came from England, the mails would be despatched at the usual hour, allowing a fair margin for the arrival of the packets: if the English correspondence, on the contrary, were of by far the greatest importance, the mails, in my opinion, ought to be detained until the arrival of the packet. In the case of Liverpool and Dublin, the first set of circumstances would apply; in the case of a communication between Brean Down and Waterford, the second. In this latter case, I should say the mails ought to be detained for the arrival of the English packets.

3126. Would you add the North also?—Yes; my opinion is that the same reasoning will apply to the communication between Portpatrick and Donaghadee. I should say, wherever the correspondence is not of such a nature that it becomes of importance, as that between the capital of the district and the extremities, then

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the local correspondence should be sacrificed to the correspondence of the metropolis as compared with the provinces; but where the correspondence is that of the local capital with its extremities, then the correspondence of that local capital is of infinitely more importance than the correspondence of the metropolis.

3127. You would propose, then, in case the English correspondence were considered the more important correspondence, that the departure of the mail-coaches should be irregular, depending upon the arrival of the packets?—I should say, that if the English correspondence were of much greater importance, relatively to the local, then I should allow a fair margin for the mail-coaches as the period of their ordinary despatch; but that if the packet had not come in, I should still detain the mail-coaches for the English correspondence. Still that detention must have its limits. If mail-coaches were employed, the irregularities of the passenger traffic would ruin the mail-coaches, and would force us to adopt mail-carts; which in many instances, if the correspondence is heavy, we cannot do, inasmuch as a mail-cart will not carry above a certain weight of correspondence.

3128. Then, taking your present answer, you would not detain the mails for the arrival of the packets at all times?—I should have two margins, upon the supposition of mail-coaches being employed. On ordinary occasions, when the correspondence had arrived, of course the mail-coach would be despatched at the expiration of the ordinary margin; upon extraordinary occasions, when the packet had not arrived, I should direct them to wait two or three hours more; as beyond that, if mail-coaches were employed, you could not detain them without destroying their passenger traffic and ruining the mail-coach. Were mail-carts employed where no passengers are carried, the order would be to wait the arrival of the English packet after the expiration of the ordinary margin; with that species of conveyance there would be only one margin.

3129. Supposing mail-coaches were adopted, what would be the margin, the packets arriving outside of which, the coaches would not convey the mails; how many times in the year would you consider it reasonable that the arrival of the packet might be expected to be subsequent to that margin, supposing the English correspondence were the correspondence to which you had chief reference?—In the case of Ireland and England, at least looking at Dublin and Liverpool, Waterford and Brean Down, and Cork and Brean Down, as the same circumstances which operate against one passage must operate against the other, I should say that what we have done between Dublin and Liverpool would be a very good guide as regards the passage between Waterford and Brean Down, and Cork and Brean Down.

3130. Would you consider an extreme margin which would leave behind one-seventh of the arrivals during the year, would have been a well-selected margin?—I am not at all prepared to admit that one-seventh would be an unreasonable proportion.

3131. Mr. *Vivian.*] I must now call your attention, as officially connected with the General Post-office, to the petitions that have been presented to the House of Commons and referred to this Committee, complaining of the defective state of the Old Passage, and the delay that is necessarily occasioned in the transmission of the mail from London and Bristol to South Wales, and through Wales to Ireland; and also setting forth the injury that would be done to Wales if the Government packets were removed from Hobb's Point. Amongst the papers now lying on the table, or that have been presented to The House, are petitions from the magistrates of the counties of Glamorgan, Carmarthen, and Pembroke, in quarter sessions assembled; and from the boroughs of Newport, in Monmouthshire, Cardiff, Neath, Swansea, Carmarthen, and indeed from all the towns and ports along the line of road from Chepstow to Pembroke. Now, I would ask you whether the defect thus complained of should be allowed to continue without an effort being made on the part of the Post-office to remedy it: whether, considering the importance of this Passage as a line of communication between different parts of the kingdom, and between the metropolis, under the Post-office arrangements, and South Wales, it should be allowed to remain in the hands of a private company: and whether, as four mails cross this Passage daily, the public have not peculiar claims on the Post-office either to take the Passage into their own hands, or to provide their own steamers for the conveyance of the mails, on the same principle as they provide steam-boats for crossing the Channel to Ireland; or in case they did not provide their own boats, whether they should not make such remuneration to the Ferry Company as would enable them to effect loans to make the necessary outlay in improving

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improving the landing-place and providing efficient steamers?—I am not prepared to allow that the delay is occasioned by the Aust Passage. I before explained to the Committee, that one of the great reasons of the delay, in addition to the disinclination of the contractors to start the mail from Bristol before six in the morning, was the necessity of its picking up at Chepstow the correspondence which comes from Liverpool and Manchester, and which in my own opinion would be considered by South Wales of almost as much importance as the London correspondence. Unless that correspondence were to be sacrificed, the mails could not be carried uninterruptedly through between London and Carmarthen. As to the question of the Government taking into their hands the Aust Passage, or making an advance of money upon it, or giving facilities to the parties for obtaining money, that is not a question upon which the Post-office can give any opinion; that is a question for the consideration of the Government in general, and not for the Post-office, which is a mere department of the Government. Precisely the same delay takes place on the return at Gloucester. The Gloucester mail is brought in in the evening for the communication with the North, and the London mail is not despatched until two hours later.

3132. In the event of your gaining four hours at the Aust Passage, and two hours by more efficient packets at Hobb's Point, so that the mail might become due at six o'clock in the morning, at Waterford, instead of 12 at noon, would not that, for all practical purposes, be a great advantage to the two countries, and be as good a line as could be adopted without incurring a very considerable outlay?—It would improve the communication between South Wales and Cork and Waterford, and perhaps Limerick. With regard to London and all other portions of England, there would be scarcely any practical benefit, if indeed any, inasmuch as a letter now reaches Limerick and Waterford, *viâ* Liverpool and Dublin, at nine a. m., and Cork at three p. m.; whereas, by the supposition of ten hours between Waterford and Cork, it would reach Cork at four p. m., half an hour after it had reached *viâ* Dublin.

3133. What is the number of letters which cross from Hobb's Point?—Three hundred thousand per annum, both to and from Ireland, by the last returns that were kept.

3134. Supposing the packet establishment at Hobb's Point were suppressed, what would be the saving to the Government?—I do not know, as the Admiralty have the account of the expenditure; but it has been calculated at about 30,000 *l.* per annum, and I suppose the correspondence earried, according to the loose returns kept, would be about 1,200 *l.* per annum.

3135. Would it be worth while to subject so extensive a correspondence to a delay of 24 hours in the delivery, for a sum of 20,000 *l.* or 30,000 *l.* per annum?—In my own opinion, it would.

3136. Should not the Post-office be considered as a national establishment, and not that a debtor and creditor account should be made for each branch?—I stated before that, as officers of the Post-office, all we can do is to measure the expense by the amount of the correspondence conveyed: on all occasions, when the expenditure incurred exceeds the amount of correspondence conveyed, the question of maintaining or establishing Post-office communications becomes a duty of the general Government, not of the Post-office, which is a mere branch of the financial department of the Government.

3137. Mr. *Morgan.*] I should wish to know whether you think there would be any saving to the Government, if the establishment at Milford were suppressed, and a larger establishment set up at Brean Down?—I should say, certainly not.

3138. Mr. *Shaw.*] It has been assumed, in a question already put to you, that it would be possible, by means of a new railroad and a shorter sea passage, to transmit the letters from London to Dublin in about 16 hours; do you think that would be a very great advantage, supposing it to be possible, to Dublin, as the metropolis of Ireland, and to the general Post-office communication between England and Ireland?—To Dublin and to Cork and Derry, which have not reply posts at present, I should say it would be a great advantage; to the other parts of Ireland, I do not think it would be of such great advantage. My own opinion is, that you could not despatch the mails from Dublin, by which the English correspondence must go down (unless you are prepared to incur a great expense), before five o'clock in the evening; and the reason I say five o'clock is, that you must give a certain time to the mercantile community to write their letters after the transactions of the day, which in most cases do not finish before three or four

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o'clock: consequently if the mails were despatched before that time, I think Dublin as the capital of Ireland, in its communication with the provinces, would be injured. Upon reflection, I would correct that answer by saying that, even to Derry, Cork has its day mail; the advantage of a sufficient interval for the reply to its English letters would be procured upon the supposition of your reaching Dublin in 20 hours; so that the mails might be practically despatched in 20 hours instead of 16.

3139. Let us first take Dublin: in respect to Dublin alone, the contemplated arrangements would bring the letters there at about 12 at noon, instead of about seven in the afternoon?—Yes; to Dublin there would be a great practical advantage. Bringing in the letters an hour earlier, between eight a.m. and four p.m. or a few minutes earlier, must be a great practical advantage to any town.

3140. In the first place, it must be a great practical advantage to merchants; it must also be a great public convenience, that a letter should be received at 12 o'clock at noon, instead of seven o'clock in the afternoon?—Yes.

3141. Now, with reference to the return; assuming letters to be received at 12 o'clock at noon, in Dublin, they might be replied to on the same day; so that assuming 16 hours again to be the time of transmission from Dublin to London, the reply letters might be received and delivered in London at the usual hour of delivery the next morning?—Certainly; assuming a communication all the way from Dublin to London, for the special convenience of Dublin alone.

3142. With regard to the country parts of Ireland, supposing the letters to be received in Dublin at 12 o'clock, and assuming, as you say, that the mail-coaches should leave Dublin at 5 p. m., would not in that case a great benefit be derived to the English communication; first, by despatching the letters at 5 p. m. instead of at 9 p. m., which is the present arrangement, and still further by the greater margin which would be given by the new arrangement?—Certainly it would be a great advantage.

3143. Then as regards Ireland, and the entire Irish correspondence with London, the arrangement would be complete?—The arrangement would be very good.

3144. And I apprehend in that case you would consider that one despatch of letters from London in a day, and one delivery in Dublin, would be sufficient for all purposes both of Dublin and of Ireland generally?—Yes, that might be the case.

3145. Will you trace a letter according to the present mode of conveyance, from London to Dublin?—A letter leaving London at 8 p. m. on Monday, would arrive in Dublin, on the supposition of an average passage of 12 hours, at six p. m. on Tuesday.

3146. Is there not also a morning despatch from London?—Yes.

3147. Will you trace a letter by that?—A letter leaving the Post-office at 9h. 15m. a. m. on Monday, would arrive at Liverpool at 7 p. m., and at an average passage, at Dublin at 7 a. m. the next morning.

3148. What are the return posts from Dublin to London, corresponding to those you have just mentioned?—A letter leaving Dublin at 10 h. 30 m. p. m., arrives at Liverpool at 10 h. 30 m. a. m. the next morning; it would be despatched from Liverpool at 7 h. 12 m., p.m. lying 9 h. 18 m. in Liverpool, and would come up to London by the up Scotch mails for the morning delivery.

3149. Then is there any morning packet from Dublin to Liverpool, corresponding with the morning packet from Liverpool to Dublin?—None.

3150. There is a packet at 5 h. 30 m. p. m. from Dublin to Liverpool?—There is; that is a local packet between Dublin and Liverpool, which also brings to Liverpool for London all those letters which have been posted before 5 p. m., the time at which the bag is made up.

3151. The letters which are despatched by the 5 h. 30 m. p. m. mail from Dublin, would be in Liverpool how many hours?—Sixteen hours.

3152. Is there any morning packet, with letters for London, despatched from Dublin?—There is a packet despatched from Kingstown to Holyhead, at 9 p.m.

3153. What letters does that packet generally carry?—It carries all letters which have come up by the morning mails into Dublin, which reach Dublin at 7 a. m.

3154. When are the letters, so despatched to Holyhead, delivered in London?—At about 3 p. m. in the City, and 5 p. m. at the west end of the town, by means of the twopenny post.

3155. Supposing that morning packet were sent to Liverpool instead of to Holyhead

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Holyhead, might not those same letters be delivered by the morning delivery in London?—That packet, on the supposition of 12 hours, would arrive in Liverpool at 9 p.m., one hour and 50 minutes after the despatch of the night train, which carries the London mail.

3156. There is one class of packets plying between Liverpool and Dublin which belong to the Admiralty, and another class which are provided by the City of Dublin Steam Packet Company (contract packets); are you aware of that?—Yes.

3157. The contract packets leave Liverpool at 7 p.m., and Dublin at 5 h. 30 m. p.m.?—Yes, they do.

3158. The Government packets leave Birkenhead in the morning, and Kingstown at 10 h. 30 m. p.m.?—They do.

3159. Are you aware that by that arrangement a great proportion of the passengers go by the contract vessels, and not by the Government vessels?—Certainly.

3160. In the proportion of at least five to one?—Certainly; we are perfectly aware of that.

3161. Can you account for that?—Certainly; passengers like a day communication: embarking at hours in the day, much better than embarking in the night.

3162. You are aware, as to the railway communication between Liverpool and Dublin, that it suits much better to the packets leaving Dublin at 5 h. 30 m. p.m., than to the packets leaving at 10 h. 30 m. p.m.?—Certainly.

3163. Inasmuch as there is a train leaving Liverpool at 8 h. 15 m. a.m., and another at 10 h. 15 m. a.m.?—Certainly.

3164. And a passenger leaving by the 5 h. 30 m. packet is almost sure to arrive in time, either for one train or the other?—Certainly.

3165. In the first case he has 15 hours for the 8 h. 15 m. train, and he has 20 hours for the 10 h. 30 m. train?—Certainly.

3166. In case he leaves by the 10 h. 30 m. packet, unless he has something less than a 12-hours passage, he cannot arrive in Liverpool in time for either train?—No.

3167. And in that case he must remain there until the night train?—Yes.

3168. Can you give a reason for the present arrangement?—The reason for the mail originally being started at 10 h. 30 m. was this: according to the theory of Post-office arrangements, that packet ought to have left Kingstown only just at such a time as would allow it to reach Liverpool at about 7 p.m., to fall in with the up mails to London, which time, allowing an average of 15 hours, would have been about 4 o'clock in the morning; but practically speaking, as no one writes letters between 11 o'clock at night and 4 in the morning, it was suggested to the Post-office by the Admiralty, that it would be a great convenience to Dublin, and also would bring some passengers to reduce the expense of the packet establishment, if the packet were permitted to start at 11 o'clock the previous night instead of 4 o'clock in the morning, which, according to the principle of the Post-office, would have been the proper hour of its departure; and the Post-office accordingly consented, inasmuch as it would be no inconvenience to Dublin, which would be the chief place which would be injured by the alteration. The despatch at 11 o'clock gives the power of reply to the Castle, to communications received from England, which communications can now be received in Dublin, in the summer, at 5 or 6 o'clock p.m., consequently any important despatch could be answered to the seat of Government by 11 o'clock that night. Subsequently it became a question, whether for the convenience of passengers half an hour more might not be allowed; and the Post-office accordingly conceded half an hour, which did not at all prejudice the reply of the Castle to communications from England. A further time was requested, but as that would involve the necessity of taking away the power of reply from the Lord Lieutenant, it was thought necessary to consult the Treasury, and the Treasury, when they had the question brought before them, thought the present hour should be maintained, inasmuch as the reply of the Castle to communications from England was so important that it ought not to be abandoned.

3169. Supposing such a communication established as that which I have assumed the possibility of, namely, a communication by railroad to Holyhead or some other port in North Wales, and the passage by means of a large class of steam-vessels from that port to Dublin, so that, upon the average, the entire transmission of letters and passengers from London to Dublin could be accomplished in 15 or 16 hours, would you consider it necessary to keep up any communication for Post-office purposes by Liverpool?—Yes, I certainly should; I think the old local communication

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communication of packets starting from Dublin and Liverpool respectively at about five o'clock in the evening, should still be maintained.

3170. Mr. *Stanley.*] In case a railroad were formed from Chester to some port in North Wales, the distance of which is about 100 miles, and the sea passage were 5½ hours, might not letters be conveyed by that route in 10 hours, consequently quicker than by the present water communication from Liverpool to London?—They might, and yet it might not be an advantage to the Government to discontinue those packets. At present all the communications fall into Liverpool packets, whether from London, Manchester, Glasgow, Edinburgh, and Newcastle, north and south. They are timed so as to fall in with all the day and night mails: without knowing, therefore, thoroughly the arrangement, and without working it out with time tables, I am not prepared to say which would be the best route. My own opinion is, that for the sake, not only of Liverpool, but of Glasgow, Edinburgh, and the manufacturing districts, it would be necessary to have a local communication between Liverpool and Dublin.

3171. Mr. *Shaw.*] Assuming that the communication could be performed quicker in the way suggested by the last question, would not that include all those places which now send by Liverpool?—I do not think it could.

3172. Suppose a railroad be formed to either Holyhead or Port-y-Llyn, in North Wales, and the passage by means of a large class of steam-vessels effected from that to Dublin, so as to make the entire time consumed between London and Dublin 15 or 16 hours, do you not consider that that would be the cheapest mode of Post-office communication for all purposes between England and Ireland, and that it would supersede all others?—I can say nothing as to cheapness; my own opinion is, that it would be enormously expensive. It would no doubt be the best.

3173. Mr. *Stanley.*] Supposing you had still to keep up a line between Liverpool and Dublin, might not that be done at a very small expense?—I should say, very little expense. Liverpool is a place of such enormous traffic, it is now in point of fact the port of Dublin, that with a communication at good hours between Liverpool and Dublin, with a good understanding with the companies (as was the case when the packets were under the Post-office), the communication might be maintained very cheaply.

3174. I understood you to say that you had rendered the present line between London and Dublin as perfect as possible?—Certainly, under existing circumstances.

3175. You have spared no expense to do that?—I do not think expense has been considered.

3176. Does it answer all purposes?—It answers them as perfectly as they can be answered under the existing speed of communication.

3177. You still have a failure, upon the supposed average, of 66 days in the year?—Yes.

3178. You do not think you will be able to decrease that materially?—I think not much.

3179. Is the London mail received in Dublin in time for delivery the same night?—It is, generally, in the summer.

3180. Is that of any use to the merchants in Dublin?—Not to the merchants, I think, but to other parties I think of very great use.

3181. Are they able to reply that night?—They may if they choose.

3182. Do you know if packets are ever obliged to delay sailing from Liverpool for want of water?—I do not.

3183. Can you tell me why I find in the returns that the packets do not sail frequently till 7 h. 3 m., 8 h. 30 m, 9, and even 11 o'clock?—I do not think it is frequently the case; on some occasions it may have happened.

3184. Does that arise from delay on the railway?—I presume it has arisen from reasons connected with tides, currents, and fogs, over which the Post-office has no control, and which would rest with the Admiralty to be remedied, if they can be remedied.

3185. It does not arise from delays on the railway?—Very seldom; there have been some few delays on the railway, but I think the occasions are rare.

3186. Do you find that in the winter time the failure in the arrival of the mails has happened for three or four days together?—I think not; but I cannot speak without having the returns before me.

3187. *Chairman.*] Would there be any great difficulty in the Post-office making arrangements with the Grand Junction railroad, to start a train by which passengers

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sengers could get to London upon the arrival of the packets leaving Kingstown at 10h. 30m. p.m., so as to enable the public travelling by the Government boats to get to London the same night?—I should very much deprecate the Government interfering with the question of passenger traffic. It is not a question of mails, but of passengers, and as far as the Post-office is concerned we have nothing to do with it. Whether the Government would choose to interfere on other grounds I cannot say; I think there would be great objection to it.

3188. Do you not think there would be an advantage to the Government by taking alternately, say for a month, the sailing from Kingstown at 5h. 30m. instead of 10h. 30m., so as to give the Government boats the opportunity of having a fair share of the traffic?—That would put an end of course to the present contracts, when I fear difficulties would arise from the City of Dublin Steam Packet Company, who would most likely start opposition boats to those of the Government.

3189. Mr. *Stanley*.] Will you explain why you consider a central line by Holyhead would be more expensive than the other lines?—Upon the supposition put to me, that you would have a special communication of your own all the way from Dublin to London.

3190. Might it not be so arranged as to be a considerable saving?—I cannot say that, if you depend upon the traffic to Ireland by way of Holyhead. If you had large and expensive boats between Holyhead and Dublin, I do not think the traffic would pay anything more than a very small portion of their expenses.

3191. Mr. *Grogan*.] On the supposition that a railroad is made to Holyhead or any port in North Wales, and first-class boats were put on that station, you say there would be a very heavy cost and a very small return; would not that expense be considerably reduced by the present positive loss of the establishment being removed?—Of course the saving which would be made at Liverpool and Holyhead would go in reduction of the new expense incurred at Holyhead.

3192. Mr. *Shaw*.] Are you aware of the great inconveniences of the port of Liverpool as a packet station?—I think it is a very bad port for a packet station; but this is a nautical question, of which I had rather not give an opinion.

3193. Are you aware that 30 miles travelling by steam on land is considered about equal to 10 miles by steam at sea?—About 22 or 23 miles would be a nearer proportion, looking at the speed of the mail trains.

3194. Mr. *Vivian*.] As there are so many instances of failure in the arrival of the packets at Dublin, would it not be a great advantage to mercantile men to have the opportunity of sending a duplicate letter to London by way of Milford?—Looking to the small amount of correspondence, I should consider it was not much appreciated.

3195. Has not the Milford line been entirely neglected by the Government?—It cannot be neglected by the Government; a party has only to put "*viâ* Milford" on his letter, and of course it would go by that route.

3196. *Chairman*.] If the entire of the English and Irish correspondence were sent through London and Dublin, would it not be a very irksome addition to the work at the main offices in London and Dublin?—No, I think not; the correspondence now goes through London and Dublin.

3197. Mr. *Morgan*.] Supposing the Milford establishment of packets to be suppressed, and one central communication with Ireland to be established through North Wales, how would letters from Newport and other parts of Monmouthshire go to Waterford?—All would depend upon the central communication and the amount of correspondence. If the amount of correspondence between Waterford and Newport were important, no doubt means would be found of establishing a line which would give a fair communication between Waterford and Newport.

3198. Can you form an opinion as to how many hours would be occupied by letters from South Wales to the South of Ireland, by such a central line?—I cannot, without knowing all the arrangements.

Martis, 24° *die Maii*, 1842.

MEMBERS PRESENT.

Mr. Corry.	Mr. Rende.
Mr. Grogan.	Mr. Shaw.
Mr. W. Johnson.	Mr. W. O. Stanley.
Mr. Octavius Morgan.	Mr. Vivian.
Lord Newry.	

LORD INGESTRE, IN THE CHAIR.

The Right Honourable *Frederick Shaw*, a Member of the Committee; Examined.

Right Hon. *Fred. Shaw*, M. P.

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3199. *Chairman.*] ARE you in the habit of crossing repeatedly from Liverpool to Dublin and back?—Yes, I am well acquainted with the journey to Dublin by Liverpool; since the completion of the London and Birmingham and Grand Junction Railways, I think I have made the passage about 12 times a year.

3200. Can you point out any particular inconveniences from the present arrangement?—I myself have experienced great inconvenience and delay from the insufficiency of water in the River Mersey; I think, on the average, I have not once, in the 12 times a year that I have made the passage, been able to step either from the pier to the packet, or from the packet to the pier.

3201. Have you ever been detained, either going out of the harbour of Liverpool or coming in, from want of water?—I have been constantly detained; and, so far as I have been able to form an opinion from what I myself have seen, and from inquiries made when crossing, I may safely say that, upon an average, both in coming and going, the packet is delayed about two hours from the insufficiency of water.

3202. We have heard a good deal of the average of the passage from Liverpool to Kingstown; putting aside the inconveniences of the entrance of the harbour of Liverpool, should you think the average could be much reduced, if you could at all times go in and out of Liverpool Harbour?—I should say, from inquiries made on board, and from my own observation, that, upon an average, I have been delayed about two hours each passage, from want of water principally, first at Liverpool, in getting out of the channel. They have generally to slow the steamer, so as to delay her for water, I should say about two hours, on the Liverpool side; and in the same way, in returning, I have generally, I think, upon an average, been delayed about two hours outside the bar. I have found the vessel to be stopped, or to move about at the bar at the entrance of the channel; and in one or two instances they have come to anchor there.

3203. What is the principal inconvenience you complain of in embarking and landing at Liverpool?—I have stated that I have frequently sustained considerable inconvenience and delay in embarking, and also in landing. Formerly the packets used to lie outside the bar, and then the passengers were put on board by a small tender; latterly the packet has generally anchored in the river, and the passengers are sent from the pier by an open row-boat. In wet and rough weather, and after dark (and it must frequently be after dark when the packet sails, the hour being after seven o'clock in the evening), I have myself witnessed the greatest inconvenience suffered by ladies, children, and infirm persons, and great alarm occasioned, and very considerable danger too, from their being obliged to go in an open boat to the packet. I may also add, with respect to carriages, when I have been travelling with my family, it has been impossible to get the carriage on board in time to save the packet, if you go down by the railway train, which corresponds to it.

3204. Mr. *Stanley.*] Are you speaking of Birkenhead now?—No, of Liverpool; I have not been by Birkenhead.

3204*. *Chairman.*] Do you think it would be a great public advantage, putting expense out of consideration, to have a railway to some port in North Wales from which the passage could be more readily effected?—I think it would be a great public and national advantage, because, independently of delays at Liverpool, from the unfitness of Liverpool Harbour for a packet station, I am persuaded, from

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from the best information on the subject, that a shorter sea passage can be effected, and that it is an object greatly to be desired, inasmuch as I believe that competent persons consider 30 miles of land travelling per railroad as about equal to 10 miles of sea voyage per steam-packet.

3205. Are you aware of any inconvenience being felt by the public from the time of the sailing of the packets from Dublin?—Yes; I consider the present arrangement to be very inconvenient, particularly as relates to the Government packets. The Government packet from Dublin to Liverpool leaves Kingstown at 10 h. 30 m. p. m., and it seems to leave just in time to be too late for the last morning train from Liverpool, at 10 h. 30 m. a. m., as the sea passage alone is above 12 hours on an average.

3206. Would it not be a convenience, either that that packet should sail an hour or two sooner, or that the train should be delayed on the other side?—I think it would be a very considerable convenience to passengers.

3207. Would it not be a convenience if the mails which are now despatched from Dublin in the morning, bringing up the correspondence from the interior, by Holyhead, were to go to Liverpool, so as to reach Liverpool in time for the night despatch to London, so that the letters might be delivered by the morning instead of the afternoon delivery?—I think it would be a considerable convenience as regards the Post-office communication, and also to passengers.

3208. What should you consider the most convenient arrangement, both in point of letter communication and public accommodation, for the packets leaving Dublin?—If the line of communication is to continue by Liverpool, or so long as it continues, I should say one packet ought to leave Dublin for Liverpool in the morning, and one late in the evening.

3209. Mr. *Stanley*.] Are you not aware that they wish to avoid as much as possible running into Liverpool in the dark?—I presume they do; I am sure they ought, because I believe it to be very dangerous, and that is one reason why the packets should not continue to go there.

3210. Mr. *Grogan*.] If the half-past five o'clock boat were to be delayed until half-past seven or eight o'clock, do you think that would answer the purpose of the half-past ten o'clock boat in the way of accommodating the Castle in furthering despatches to the Government, and taking all the letters brought to Dublin by the day mails?—It appears to me, that so far as the late packet is a convenience to the Government, that object would not be gained equally by a packet sailing at half-past seven o'clock; but I have doubts of the Government taking any great advantage of the late packet. The evening letters are not due in Dublin, according to the average rate of transmission, until about half-past seven, therefore a packet sailing so soon as that could not afford any accommodation to the Government in replying to communications received by the late mail. In answer to the second part of the question, I think it would answer every purpose of Post-office communication with the interior of Ireland, and the conveyance of passengers.

3211. You have, of course, often sailed by the half-past five o'clock boat?—Constantly.

3212. Has it ever occurred to you to have been landed, after a fair summer passage, in Liverpool, at so early an hour that you were too late for the early train, and too early for the eight o'clock train, and there were no houses open to receive you?—I have occasionally; however, but seldom, found inconvenience from landing too early at Liverpool.

3213. Consequently, if the packet had been delayed an hour or an hour and a half, those circumstances would not have occurred, and you would still have been in time for the morning train?—Certainly; but the principal reason, I say, that I should see in objection to the packet being delayed two hours longer on the Dublin side is, that there is a train which leaves Liverpool at 10 h. 15 m. a. m., as well as one at 8 h. 15 m., and, therefore, by one or other you would have reasonable certainty of a conveyance to London.

3214. *Chairman*.] Is there anything you wish to add?—I would say, having for many years taken an active interest in the improvement of the communication between London and Dublin, that I think, practically the question as to the best route now comes to this point, whether the port of Holyhead or of Port-Dynllaen is the most eligible for a packet station for the purpose of that communication. I do not feel myself competent to give any positive opinion upon their relative merits; but if the Committee will allow me, I will give in evidence a resolution, passed at a meeting of Members of Parliament, held at my house on the 9th of March last, Right Hon. *Fred. Shaw*, M.P.

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and a correspondence between Lord Eliot, as Secretary for Ireland, and the Lords Commissioners of the Admiralty, in pursuance of that resolution.

[*The same were handed in, and read, as follows*:]

(No. 1.)

"AT a meeting of the Members of the House of Commons, held at 5, Chesterstreet, on Wednesday, 9th of March 1842, it was unanimously resolved, that a deputation from the present meeting, consisting of the following gentlemen, Mr. Shaw, Captain Hallam, Lord Robert Grosvenor, Mr. Clive, Mr. Ormsby Gore, and Mr. Lloyd Mostyn, be appointed to wait upon Lord Eliot, as Chief Secretary for Ireland; first, to request that his Lordship will draw the attention of Her Majesty's Government to the great public importance of improving the communication between London and Dublin; adverting to the present long and inconvenient passage by Liverpool, and to the consideration that the power of steam is available for travelling by railway in a proportion of about three to one of the speed that can be attained at sea. Secondly, to request that Lord Eliot will have the goodness to communicate with the Board of Admiralty, referring to the report of Captain Beaufort, R.N., transmitted to the Treasury, and presented to the House of Commons, on the 14th of March 1839; also to the reports of Lieutenant Sheringham, bearing date the 14th of March 1838 and the 7th of May 1838, on the harbours of Holyhead and Port-Dynllaen, in pursuance of the Report of the Select Committee appointed by the House of Commons to inquire into the existing communication between London and Dublin, of the 8th of July 1836; and to the report of Rear Admiral Sir James Gordon and Captain Beechey, R.N., dated 14th January 1840, relative to the best means of communicating between London and Dublin, in pursuance of an address of the House of Commons of the 12th of August 1839, with the view of obtaining the opinion of the Board of Admiralty on the relative capabilities of the ports of Holyhead and Port-Dynllaen for the purpose of a packet station for such communication, or the construction of works suitable to a packet establishment for the use of steam-vessels of a class sufficiently large to secure, so far as is practicable, expedition and certainty in the passage at all seasons of the year.

(signed) "*Frederick Shaw*, Chairman."

(No. 2.)

"Sir,

Irish Office, 12 March 1842.

"I HAVE the honour to acquaint you, for the information of the Lords Commissioners of the Admiralty, that I have this day received a deputation of Members of the House of Commons, consisting of Mr. Shaw, Captain Hallam, Lord Robert Grosvenor, Mr. Clive, Mr. Ormsby Gore, and Mr. Lloyd Mostyn; and that I have been requested by them to communicate with the Board of Admiralty, referring to the report of Captain Beaufort, R.N., transmitted to the Treasury, and presented to the House of Commons on the 14th of March 1837: also to the reports of Lieutenant Sheringham, bearing date the 14th March 1838, and 7th of May 1838, on the harbours of Holyhead and Port-Dynllaen, in pursuance of the Report of the Select Committee appointed by the House of Commons to inquire into the existing communication between London and Dublin, of the 8th of July 1836; and to the reports of Rear Admiral Sir James Gordon and Captain Beechey, R.N., dated 14th January 1840, relative to the best means of communicating between London and Dublin, in pursuance of an address of the House of Commons, of the 12th of August 1839, with the view of obtaining the opinion of the Board of Admiralty on the relative capabilities of the ports of Holyhead and Port-Dynllaen for the purpose of a packet station for such communication, or the construction of works suitable to a packet establishment, for the use of steam vessels of a class sufficiently large to secure, so far as is practicable, expedition and certainty in the passage at all seasons of the year. In compliance with their request, I have to beg that you will be pleased to lay this communication before the Lords Commissioners of the Admiralty, and to request that they will be pleased to favour me with their opinion upon the points thus submitted for their consideration.

"Yours, &c.

(signed) "*Eliot.*"

Right Hon *Fred. Shaw*, M.P.

24 May 1842.

(No. 3.)

"My Lord, Admiralty, 19 March 1842.

"HAVING laid before my Lords Commissioners of the Admiralty your letter of the 12th instant, requesting the opinion of my Lords, on the relative capabilities of the ports of Holyhead and Port-Dynllaen, for the purpose of a packet station, in communication with Ireland, or the construction of works suitable to a packet establishment, I am commanded by their Lordships to acquaint you that they are of opinion that Holyhead, with its ready-made port and pier, which are capable of being enlarged and improved, is preferable to Port-Dynllaen, where everything would have to be created. Captain Beaufort's Report of 14th March 1837, stated his reasons for preferring Port-Dynllaen to Orme Bay, as the terminus of a railway; but if the mails can be passed over the chain bridge of Bangor without material delay it is obvious, for the above-mentioned reasons, that Holyhead would be preferable to either of them; and later inquiries seem to show that Holyhead Pier might be somewhat prolonged, as well as the entrance of the harbour partially deepened by dredging.

"I am, &c.

"The Lord Eliot." "*John Barrow.*"

(No. 4.)

"My Lord, 5, Chester-street, 22 March 1842.

"I HAVE had the honour to receive your letter, covering the copy of a correspondence between your Lordship and the Secretary of the Admiralty, relative to the communication between London and Dublin. I have shown the correspondence to the gentlemen of the deputation from the general meeting, who with me waited upon your Lordship on the subject. We beg to thank you for the promptness with which you have complied with our request; and to observe upon one passage in your Lordship's letter to the Secretary of the Admiralty, which does not seem to us to have been very clearly answered,—we mean the passage inquiring as to the capabilities of the port for the construction of works suitable to a packet establishment for the use of a large class of steam-vessels, we should say at least as large as those now plying between Liverpool and Dublin. We are led to believe that the present harbour at Holyhead is insufficient both in depth of water and in size for that purpose; and we are anxious to learn the opinion of the Lords Commissioners of the Admiralty more distinctly upon that point. And if it be proposed to construct an outer harbour, as suggested in the Report of Sir James Gordon and Captain Beechey, what the cost of such outer harbour would probably amount to, bearing in mind that a great increase of traffic, as well as a principal part of the Post-office communication would naturally be drawn to a harbour forming a portion of the most expeditious and certain line of communication between England and Ireland generally. We should feel much obliged if we could be favoured with this further information.

"I have, &c.

(signed) "*Frederick Shaw.*"

(No. 5.)

"My Lord, Admiralty, 28 March 1842.

"HAVING laid before my Lords Commissioners of the Admiralty your Lordship's letter of the 24th instant, with the enclosed communication from the Right Hon. F. Shaw, requesting more distinct information on some points respecting the packet communication between England and Ireland, my Lords desire me to acquaint you that four or five borings were made (in 1840) in Holyhead Harbour, in order to discover the depth of the soft ground, capable of being dredged, and though a more elaborate examination will be necessary before any serious measures are adopted, yet there appears sufficient reason for believing that room might be made inside the lighthouse for two vessels drawing more water than the Liverpool and Dublin packets, and at an expense very trifling when compared with that of a new harbour. It also appears that by continuing the present pier, space might be obtained for more packets than can be requisite for communicating with Dublin twice every day. As to the cost of a new harbour, their Lordships have no means of replying, as no estimate has been made by a civil engineer, nor indeed any plan except a mere suggestion by Sir James Gordon and Captain Beechey.

"I am, &c.

(signed) "*John Barrow.*"

EDWARD GROGAN, Esq. in the Chair.

Mr. *William Cubitt*, called in; and Examined.

Mr. *W. Cubitt.*

24 May 1842.

3215. Mr. *Shaw.*] YOU are a Civil Engineer, I believe?—I am.

3216. Has your attention been directed to the subject of railway communication with Ireland, as well as to the ports or harbours most eligible for packet stations, in order to expedite and improve the Post-office communication between London and Dublin?—Incidentally, but not directly.

3217. Are you aware that at present the principal line of communication, both for Post-office purposes and for passengers, is by the London and Birmingham and Grand Junction Railways to Liverpool; to Liverpool, and from thence by sea to Dublin?—I am aware of the present line from London to Dublin.

3218. And you are acquainted with Liverpool as a packet station?—Yes.

3219. Do you consider that a shorter sea passage would be an important object in the communication, independently of any objections that there may be to the port of Liverpool as a packet station?—I am strongly of opinion that the shortest sea passage is the most desirable to form part of the line between London and Dublin.

3220. Are you able to give the Committee an opinion, founded upon your own professional skill and knowledge, as to the proportion in the rate of travelling by railway and by sea?—I should say, at the present rate of travelling, 30 miles of railroad may be set against 10 miles of sea.

3221. Are you acquainted with the peculiarities of the harbour of Liverpool, and the navigation of the River Mersey?—I am.

3222. What opinion have you formed as to the eligibility of the harbour of Liverpool for a packet station?—The port of Liverpool is not a good port, with reference to its entrance from the main sea; I have frequently been at Liverpool, certainly more than twice or thrice, with only two fathoms of water over the bar.

3223. As regards the pier, and the facilities of bringing a packet alongside the pier, are you able to speak of the circumstances of Liverpool in that respect?—Yes; the Post-office packets do not come alongside the pier.

3224. Generally they do not?—Scarcely ever, I think.

3225. Can you point out any other route as possessing greater advantages than that by Liverpool; and as this is no new question, and practically it has come to a comparison between the ports of Holyhead and Port-Dynllaen, you will be so good as to confine your answer to those two ports. In the first place will you state whether you have formed any positive opinion in favour of one of those ports as compared with the other?—I never was at Port-Dynllaen at all, but four or five years ago, before the completion of the Birmingham Railway, I made a report, at the request of the Commissioners on Irish Railways, to the Secretary, which was printed with some Parliamentary Papers; and my opinions are expressed, I think, pretty strongly in that report upon the subject of a railway through North Wales.

3226. Was that a letter dated the 2nd of July 1838, on the practicability of a railway through North and South Wales, printed in the Second Report of the Commissioners of Railways for Ireland, p. 84?—Yes.

3227. Do you still entertain the opinions you expressed in that report?—Those opinions I entertain now. I do not think, after all my railroad experience, I have any reason to alter those opinions at all.

3228. Have you formed any decided opinion in your own mind upon the relative merits of the two ports of Holyhead and Port-Dynllaen?—I have not, because I know nothing about Port-Dynllaen. What I stated in that report was taken from the data furnished by the investigations of other engineers, which had become public property; for instance, the examination of Mr. Rastrick and Mr. Bignolles, with reference to the high Welsh line, and the opinion of Mr. George Stephenson and others with regard to the coast line. I know Holyhead, personally, very well; I have been there many times, out and in, and looking about it professionally. Port-Dynllaen I never saw at all, although I know its situation. Again, the question, if taken up on a broad scale, would comprise the subject of a harbour of some kind at Port-Dynllaen, and then comes the question of what kind of harbour, whether a packet harbour or a harbour for other and more general purposes. The question is a very wide one if looked into carefully and professionally. That would very much depend upon the instructions given to the party looking at it.

3229. Are

3229. Are you acquainted with the documents which have already been published relative to those two lines?—Somewhat, not much; I never had much reference to them; I have seen them, and I know some have been published, but I am not acquainted with all that have appeared.

3230. Are you able to state whether you consider there are at present sufficient data to form a correct opinion, as between the relative capabilities of those two harbours?—I have not sufficient data to form an opinion, and I shall be very loath to state an opinion before this Committee founded upon the conclusions of others; I should not like to give an opinion except from my own knowledge.

3231. You say you are acquainted with Holyhead?—I know Holyhead very well.

3232. Do you speak now of the harbour of Holyhead, or the proposed route by Holyhead?—I speak of the port of Holyhead considered as a harbour; I also know the route by Holyhead very well.

3233. Will you give the Committee as much information as you have it in your power to give, with regard to the Holyhead line?—With regard to the Holyhead line, I can only refer back again to my former report. The distances are there stated, and the time in which the mail might be conveyed to Holyhead, and the result of my railway experience has proved those statements to be correct. The Committee will observe that report was made before the Birmingham line was opened.

3234. I observe you say in the letter to which you have referred, with reference to the route by Holyhead, "It would require about 83 miles of railway to be constructed, and such improvements made to the harbour of Holyhead as would admit at all times of tide that class of steam-vessels most suitable for the purpose of mail-packets"?—Yes; that is, if anything be done to Holyhead, it ought to be done to the extent of providing for the same class of steam-vessels which now go from Liverpool to Kingstown.

3235. Is it your opinion that the present harbour of Holyhead could be made suitable for that class of steam-vessels?—Yes, they do now occasionally put in there, under adverse circumstances, when they cannot go to Liverpool.

3236. Do you know the depth of water in the present harbour?—The least water of all at Holyhead in a line from the present pier, extending, I think, about 15 feet, or at the very lowest of the lowest spring-tides perhaps 14 feet.

3237. Would there be accommodation for vessels of the class you speak of in the present port of Holyhead?—Not in the present port of Holyhead; it is not capable; it is too small and too shallow. There would be in the port of Holyhead improved.

3238. In the report of Sir James Gordon and Captain Beechey, they speak of the present port, and point out some objections to it; they also suggest the construction of a new port or harbour, immediately adjoining the present?—So I have understood, but I never saw their plan or their report.

3239. Is it with reference to the proposed new harbour that you have given your opinion?—I gave my opinion with reference to what Holyhead Harbour improved would be capable of, and not what it is now capable of.

3240. Adverting to the distinction taken by Sir James Gordon and Captain Beechey, with respect both to the present port and to the present pier, as being capable of some improvement, they speak of a new and outer port or harbour as being the thing they recommend. The Board of Admiralty also, in a communication which has been laid before this Committee, speak of the inner or present harbour, as distinguished from the outer or new harbour proposed by Sir James Gordon and Captain Beechey. I wish to call your attention to the distinction between the two in the evidence you are about to give?—When I stated there was at least 14 feet at the lowest spring-tides in a line with the present pier, it was across the part of the bay from the pier to the opposite shore. I take the average low water there to be about 15 or 16 feet.

3241. What is it at the entrance of the pier?—From 12 to 15 feet at the pier head, and 9 or 10 feet within, higher up.

3242. Then you consider the part called the harbour, lying within that entrance, is unsuitable to the purpose of such a class of vessels?—Yes, it is insufficient for the purpose of such steamers as ply between Liverpool and Kingstown; but improvements might be made at a comparatively small expense, I should say, which would make it eligible for such packets as those, without going to the extreme expense of an entire new harbour.

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3243. Would that bring the berth of the packets to the outside of the present pier, or the inside?—The inside. The present pier might be extended either in a straight or crooked direction, so as to give more water.

3244. In a communication from the Lords of the Admiralty to Lord Eliot there is this observation, as to the cost of a new harbour at Holyhead: "Their Lordships have no means of replying, as no estimate has been made by a civil engineer, nor, indeed, any plan, except a mere suggestion by Sir James Gordon and Captain Beechey." Now I want to know whether you consider that paper before you (*the Witness referred to a plan*), to be more in the nature of a plan, or what the Admiralty call a suggestion, by Sir James Gordon and Captain Beechey?—That depends upon what accompanied the plan; it may be a suggestion, or it may be a plan. If I say a harbour can be made of this shape, at the back of the present pier, which I think would answer the purpose, I should say that is a suggestion; if I send a thing drawn on paper in the same form, accompanied by such a report and such estimates as would put all the facts before the parties it is sent to, that I should call a plan, because it would be definite. This may be merely what is called a suggestion, marked upon the Admiralty survey; I do not know what accompanied this from Sir James Gordon and Captain Beechey; I was not associated with them in the business; we were commissioners in another business together, but not in this.

See Plan, No. 3.

3245. Would you be able to form an opinion of the probable cost of such a harbour as is there suggested, without an estimate being made by a civil engineer?—No, not an estimate that I should like to state as evidence.

3246. Mr. *Stanley.*] Did you ever hear that Mr. Telford had projected the plan of an outer harbour at Holyhead?—I do not know that he ever did; Mr. Telford had a great many works with reference to Holyhead, I know; he was frequently down with reference to the Holyhead roads, and making accommodations at Holyhead.

3247. Mr. *Shaw.*] I think you have already stated, that as regards the proposed harbour at Port-Dynllaen, you are unable to give any opinion?—I have never seen that statement, and therefore I cannot say anything of it. Upon a comparison between the two, I can only say that I know Holyhead. I will state, as shortly as I can, my ideas of the present harbour, divested from all considerations of comparison with other places, or any specific purposes of Post-office communication. The present harbour of Holyhead is a small harbour, and very much filled up with mud; if that mud were removed from the inner part of the harbour, it would afford berthage to some few vessels more than could at present go into it. The depth of water at the inner end of the pier is not more at the extreme than 12 or 14 feet at low-water spring tides, and not more than veering from 12 or 14 at the outer to 8 or 9 feet at the inner end of the pier.

3248. Do you consider that a sufficient depth of water for a class of vessels suitable for a communication between London and Dublin?—Certainly not; I stated before I considered it quite insufficient.

3249. Then if that be so, how would it be possible to improve that harbour if there would not be sufficient depth of water, so as to make it suitable for the purpose of such a class of vessels?—By lengthening this pier 200 feet, even in its present direction, it would afford a berthage for many more steamers, and with better water, and with easier access and egress than exist at present in the harbour as it is now. I stated either a straight or a crooked extension of the pier would give more accommodation than there is at present.

3250. *Chairman.*] Do you consider that would be liable to silt up as the present harbour does?—The present harbour silts up very slowly.

3251. It appears from the estimates there is a very considerable sum spent annually for dredging?—I do not think there is much dredging done there.

3252. Mr. *Shaw.*] You stated there was a considerable quantity of mud in the present harbour?—Yes, but that is the collection of ages; that is not a sudden deposit. You will not find three inches next year, at this time, more than there is at present.

3253. Mr. *Reade.*] Is that a natural deposit there, or is it affected by the creation of the harbour?—A natural deposit.

3254. Mr. *Shaw.*] Is there any river discharging itself into the present harbour of Holyhead?—Very little, if any; there may be a little mountain driblet at the upper end, but it is at a very great distance up the harbour.

3255. Do you consider the silt or mud to be occasioned by that river or not?—I am fully prepared to say it is not.

3256. Mr. *Stanley.*] Would it not be less likely now to get an accumulation of mud, as the whole harbour is walled round, than it was in former times?—No; I conceive this pier might be extended, because the mud existed at that time. I have no doubt of it. This mud has not accumulated since the pier was made; it is of very old standing.

3257. Are you aware it has been ascertained that at the entrance of the harbour there is no accumulation of silt at all?—I do not know the fact, but I should suppose there could be very little.

3258. Have you ever had any communication with Captain Beaufort as to the practicability of deepening the present harbour by excavation?—I have talked over the subject with Captain Beaufort sometimes, and he is quite aware, and so am I, that the mud can be taken out by dredging, but the bottom is very unlevel.

3259. Do you know whether it has been ascertained what is the depth of mud in different parts of the harbour for boring?—I know they have had a few borings taken, but what the result has been I do not recollect. I think it is as deep as 20 feet in some places; in some eight or nine.

3260. In your opinion could the present harbour be made capable of containing the largest class packets always afloat, by excavation of that sort?—I believe there are holes, if I may so term them, in the harbour, which are now filled with mud, which, if the mud were excavated, would form berths large enough to enable them to float always, for the bottom of these holes are lower than low water; but that any dredging of that harbour could make it a good harbour for large steamers, I doubt.

3261. *Chairman.*] Then of course no expenditure of money for dredging or other purposes would render the present harbour of Holyhead sufficiently commodious for the class of boats we are speaking of?—I think the present harbour might be made sufficiently commodious for the class of steamers referred to, by extending the present pier in a straight or crooked form, as circumstances might require. The present harbour would be greatly improved for mercantile and general purposes by taking the mud out of the harbour.

3262. Mr. *Shaw.*] You are speaking of mercantile or general purposes; do you consider that, in enlarging the harbour as you propose, a very great addition of general traffic would be drawn to that harbour, of sailing-vessels as well as steam-vessels?—No, I think not. If there were a railway down to Holyhead from the interior, and the harbour improved outwardly to suit the packet service, there would be an increase of trade to that place, from the circumstance of a railroad and a packet station being made there; but then the improvement of the inner harbour would be exceedingly desirable.

3263. But if you were to enlarge the harbour outwardly, could you prevent vessels in distress taking refuge in that harbour, when they were disposed to do so?—I should not be disposed to prevent them at all; but if the object be to make a harbour to suit large steamers, it does not follow that would make it a good harbour for resort as a refuge harbour. A refuge harbour is a different thing altogether. If you want to make a refuge harbour at Holyhead, you must take half the bay. It would never make a refuge harbour, where vessels could not go in under adverse circumstances and lie in safety.

3264. Mr. *Stanley.*] But the alteration you propose would not make it a worse harbour for the purposes of general trade?—No; much better.

3265. Mr. *Shaw.*] Would not the extension of the existing pier present some considerable difficulty to a sailing vessel entering the harbour, particularly in case of a north-westerly wind?—With all deference to nautical opinions, in my judgment, as a civil engineer, the thing would be improved, inasmuch as the pier could never be lengthened out as I have described without making a covering breakwater adjoining the main land, so that the instant a vessel had rounded the head of the pier she would be in smooth water, in fact, in the harbour. It would not make it worse, but it would make it better, because you would have a larger harbour then to come into.

3266. Are you able to say what should be the draught of water of vessels suitable, in your opinion, to the purposes of a communication between London and Dublin?—What it should be is, what would be enough. I should say 12 or 15 feet for the largest steamers.

3267. Do you know what is the draught of what are called the contract vessels between

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between Liverpool and Kingstown; the Prince and Princess, for instance?—I do not know exactly what they draw. I know the Government vessels draw about 10 feet, and the others draw 18 inches or two feet more.

3268. You are aware that some inconvenience has been felt in the case of the Government vessels, the Merlin and Medusa, from their want of sufficient draught of water?—I did not know it arose from that; I know they have defects; I have been with all those vessels, and in very bad weather sometimes.

3269. Are you aware that an addition has had to be made to their keels?—I have understood so.

3270. Mr. *Stanley.*] Can you form no rough estimate of the expense of such a harbour as you propose, for all packet purposes at Holybead?—No, not such an estimate as I could give to the Committee.

3271. Can you give an approximate?—Not nearer than what I gave in this report. That is an approximate estimate, founded upon such evidence as I had at that time, and I have had no better since.

3272. You have stated in that report the whole expense of the formation of a railway through North Wales to Holyhead would not come far short of two millions sterling; can you state what portion of that you put for the improvement of the harbour?—I think, 700,000*l.* or 800,000*l.* altogether; certainly more than 500,000*l.*

3273. Mr. *Shaw.*] That is, for the improvement of the harbour?—Yes.

3274. Do you consider the plan suggested by Sir James Gordon and Captain Beechey would be the best for a harbour at Holyhead, if it could be adopted?—I do not know that it would; from my experience of it, I think it is too small to spend much money about.

3275. Can you state what proportion that bears in size to the present Kingstown Harbour?—I think not so much as a quarter.

3276. Mr. *Stanley.*] While at Holyhead, did you examine a place further out, called Soldier's Point?—No, I never went down professionally, with a view to the formation of a harbour.

3277. In the rough estimate you formerly gave of 400,000*l.* or 500,000*l.* for the outer harbour, you did not allude to a small elongation of the pier?—No, I calculated on doing something better than that.

3278. But you cannot form any estimate of a suitable elongation of the pier, to give a sufficient draught of water to packets to come to?—No.

3279. Mr. *Shaw.*] With regard to the harbour at Port-Dynllaen, you have stated in the report already referred to, that you think such a harbour as would answer the purposes of a packet station might be formed at Port-Dynllaen, the expense of which would not be very great?—I stated the length of railway to be made would be 135 miles, and such a harbour, called Port-Dynllaen, as would answer the purposes of a packet station, the expense of which would not be very great. Still the whole cost of the works from the Grand Junction Railway at or near Wolverhampton to and including the harbour of Port-Dynllaen, could not be estimated at less than three millions sterling.

3280. Are you still of that opinion, as far as you are able to form a judgment?—I am so little acquainted with the place, that I can form no opinion of the cost of the harbour.

3281. I presume that was made upon Lieutenant Sheringham's report?—Yes.

3282. Now, with reference to the passage of the Menai Bridge, you state in your report that in your judgment it offers no material impediment to such a route; do you still hold that opinion?—I still hold that opinion; I see no reason to change it at all.

3283. Have you heard that any serious damage has occurred to that bridge since you gave that opinion?—Yes; the bridge has been blown almost to pieces, but not from traffic, it was from a violent storm.

3284. Do you think it is more liable to such damage than an ordinary stone bridge?—Yes; but I think experience will enable us, as it has done in a great measure, to restore those damages and make it better every time. I think the bridge is better now than ever it was before.

3285. How would you propose to cross it; by a railway?—I do not know from experience; but I do not think I should be afraid to run a locomotive engine over that bridge. I am quite sure a long train of six or eight carriages, letting alone the engine and tender, which weigh about 20 tons, might be drawn over that

bridge

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bridge with perfect safety, certainly with as little danger as a coach and horses, and less. I think the motion, from trotting of horses and a coach over the common pavement of the bridge, is more stress upon the bridge than drawing a long train of railway carriages with a rope.

3286. You have not made up your mind as to the mode in which you would pass the train over ?—I can give you one, two, or three modes ; there is no difficulty in suggesting modes ; I will give you one mode which occurs upon the instant, in which I would make the locomotive engine do the work without going over the bridge : admitting there is an engine establishment on each side of the bridge, which there might with propriety be in such a case, and the engine coming with a train of carriages from London to be passed over in quick time, imagine a rope laid along the bridge, with a hook at each end, the carriages at one end, and the locomotive upon the other, then, by hooking the rope on to the engine and carriages respectively, and starting the engine, the train would be drawn over the bridge by the time the engine had gone the length of the bridge upon the railway beyond ; immediately on the carriages arriving at the other side, the engine would back to the carriages and hook on to the train ; the whole thing would be done in a minute, because by the time the next train came, the porter would draw the rope along the bridge, and it would be ready for the other train.

3287. *Chairman.*] You mentioned that in the event of the pier being improved at Holyhead, and a railroad brought down to that port, there would be a great increase of trade ?—I think there would.

3288. Did you mean a passenger traffic, or a trade, strictly so called ?—I mean both, for this reason ; if a good railway were brought from the interior to Holyhead, it would become, in fact, the port of a greater district than it is now, upon the same principle as if a river extended further up into the country, there would be more traffic upon it than before ; the railway would supply the same means of transit that a canal would do.

3289. Mr. *Shaw.*] Then bearing in mind the probability of increased traffic, and also the necessity of a harbour sufficiently large to accommodate the class of vessels suitable to a communication between England and Ireland, what, according to the best computation you can now form, do you consider would be the cost of such a harbour ?—I can say no more about the cost than I stated in my report, which has been referred to.

3290. Mr. *Stanley.*] Will you look at that plan and estimate by Captain Beechey, and state whether you can give an estimate of the cost of carrying it into effect ?—An improvement of the kind suggested in this plan might be made at far less cost, in proportion to its advantages, than that of Sir James Gordon and Captain Beechey ; you could get more for the money in proportion in this than in the other.

3291. The proposed estimate of that is 70,000 *l.* ; will you glance over the rough estimate of that, and say whether it approximates to yours ?—Yes, I should think it does.

3292. Mr. *Shaw.*] What is that plan ?—That is for what I call a sickle harbour.

3293. I think, from what you have already stated, without the estimate of a civil engineer you cannot form any accurate idea of the cost of improving the harbour ?—No.

3294. That of course refers equally to Holyhead as to Port-Dynllaen ?—Yes. Port-Dynllaen I can form no opinion of. All I now say with reference to Holyhead might be superadded or not, if I knew as much of Port-Dynllaen as of Holyhead ; therefore it does not detract from the merits of Port-Dynllaen at all, or add to its capabilities, whatever they may be.

3295. *Chairman.*] Upon the supposition of a railroad and harbour being erected at Port-Dynllaen, the same increase of trade and traffic which you anticipate with regard to Holyhead would apply to that port ?—Quite so. I am quite unable to give an opinion whether a railroad along the coast to the harbour at Port-Dynllaen, without crossing the Menai Strait, might not be better, or might not be worse as to cost or merits, than the improvement of Holyhead. Upon that I cannot give an opinion.

3296. Mr. *Shaw.*] You have already stated in your report with regard to Port-Dynllaen, that " the land passage might be a little shorter and the sea passage a little longer, but the latter would probably be compensated by the more favourable direction of the line of passage with the prevailing winds " ?—Yes, such is the fact.

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I think the direct line of navigation from Port-Dynllaen to the Kish Bank is a better line for south-westerly winds than the line from Holyhead; that is my opinion as a civil engineer.

3297. Have you any further observations to make upon that portion of the report to which you have referred?—None at all.

3298. Mr. *Stanley.*] You are aware the Kish Bank and other banks come directly in the line of communication between Port-Dynllaen and Kingstown?—Yes, I know the Kish Bank very well.

3299. That renders the sea passage from Port-Dynllaen to Kingstown much longer than by Holyhead?—It would be about four or five miles longer; I think not exceeding five, taking both the position of the Kish Bank and the position of Port-Dynllaen Harbour, from the best surveys I can obtain.

3300. *Chairman.*] You have mentioned something in your report about a more favourable wind applying to Port-Dynllaen than Holyhead; and you mentioned that five miles would be, in your estimate, the increased distance a vessel would have to travel; what length of time would you put, taking into account the more favourable wind for the longer voyage?—From half an hour to 40 minutes.

3301. Mr. *Stanley.*] Are you not aware it has been stated by Sir James Gordon and Captain Beechey, that the distance would be nearly 12 miles longer in consequence of rounding the Kish?—In consequence of rounding the Kish it could not be; but if Port-Dynllaen is further from the Kish than the Kish is from Holyhead, that distance must be added to that caused by the angle. If the chart is correct, the difference is due far more to the distance from Port-Dynllaen to the Kish Light, as compared with Holyhead, than to the angle caused by the Kish. The difference is due to the difference of distance from the two places to the Kish Light, and not to having to round the Kish.

3302. But the whole distance in the length of the sea voyage would be 12 miles more to Port-Dynllaen?—I should say between four and five miles. I may be allowed to observe, I am anxious that anything I may say with regard to Holyhead may not be taken for or against Port-Dynllaen as an opinion of mine by implication.

3303. Mr. *Shaw.*] I think you stated that you feel the importance of this subject would call for further inquiry than has been already had into either of these harbours?—Yes; I should think there is scarcely a person, perhaps not one, who thoroughly understands both parts of the subject equally. I know as much of one as most people, but I know nothing of the other part.

3304. Is what you mean by that answer, that, as far as your opinion goes, there are not sufficient data in existence to form a correct opinion upon the relative merits of the two ports?—That is my opinion.

3305. Mr. *Stanley.*] Have you read all the reports of the Commissioners appointed by the Admiralty?—No, I do not know what has been published upon the subject; I have never read them as a matter of curiosity or as a matter of information.

3306. Mr. *Shaw.*] I see by your letter you have read Lieutenant Sheringham's report; have you read the report of Sir James Gordon and Captain Beechey?—No.

3307. Mr. *Stanley.*] Then you are not aware the Commissioners have reported upon the two lines?—Yes, I am aware the Commissioners were instructed to report upon it, but what the report is I do not know.

3308. Then you do not feel yourself competent to give any opinion upon the report of those Commissioners?—Certainly not; and I should not feel myself competent to do that, even if I had read the report, because I must take a great many of their statements for granted to form my own judgment upon.

3309. Mr. *Shaw.*] I see you state in your own report, with reference to Port-Dynllaen, "I believe it to be in the best position of any for a passage between England and Kingstown Harbour, but I fear that the cost of a railway to reach it, and the expense of a harbour, would be very great;" when you refer there to the cost of a railway to reach it, do you mean a line from the present railway at Chester to Port-Dynllaen, or a line through the interior?—No; what I had before me when I made that report was the information derived from Mr. Bignolle's and Mr. Rastrick's survey of, what I call, the high line through North Wales. At that time, I believe, there were no plans of the line along the coast.

3310. As regards the communication by railroad from Chester, do you consider there would be any material difference in the cost, as far as you can at present be informed, between Holyhead, on the one side, and Port-Dynllaen on the other?—

I think

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I think if you got to Bangor, there cannot be much difference in the cost between the line to Holyhead and the line to Port-Dynllaen.

3311. Mr. *Stanley.*] I think you have stated before, the passage of the Menai Bridge offers no impediment?—I did not say that; I say, I should not be afraid to try it with a train of carriages passed over as I now suggest, as the bridge now is.

3312. Without interfering with the usual traffic of the bridge?—Yes, except that the usual traffic would both go and come on one side.

3313. And in the mode in which you propose to cross it, there would be very little delay of time?—Very little indeed; the delay in time would not afford an item in the calculation.

3314. Mr. *Shaw.*] With reference to the rate of travelling by the railroad, at what would you compute it with reference to the proposed communication?—Taking all seasons, at an average of 25 miles an hour, which would be quite as fast as would be either safe or expedient.

3315. Stoppages included?—Yes, and you must go 35 or 40 miles sometimes to do that.

3316. *Chairman.*] How many hours would you give from London to either of those points?—According to that rate.

3317. Mr. *Shaw.*] Can you give any opinion as to the sea voyage; what rate, with a good class of vessels, would you allow for that?—From Holyhead, with the best class vessels, five hours upon the average. You could do it in less than five hours with the best vessels; it would be very little over a five hours' average, if any.

3318. That would be altogether about 16 hours from London to Dublin?—Yes.

3319. Are you aware that by the saving of the particular hour we are now speaking of, with reference to Dublin, the hours themselves would be most important as well as the time?—Yes, I allude to that in my report. It might happen that the saving of five or six hours would do very little good, and the saving of the last hour would do all.

3320. You state in your report, "Should any one of the above routes be adopted for the conveyance of the mails, it would in my opinion render quite unnecessary any mail packets between England and Ireland southward of them, inasmuch as, by the means above stated, the English letters for all Ireland would be despatched from the Dublin Post-office at the usual time on the following evening after leaving London, and thus arrive at Waterford (the present South of Ireland packet station) eight to ten hours sooner than they now do by the Milford Haven and Waterford packet"; and you add, "Should a line or lines of main railway be ever established from Dublin to any parts of Ireland, the advantages to all those parts will be still greater, from making the communication between London and Dublin the best possible." Do you still hold that opinion?—With a little reservation, that you would want none southward at all.

3321. Mr. *Reade.*] What would you do then with South Wales and the South of Ireland?—South Wales might very readily help itself by means of its roads and railways, and then you must adopt a 12 or 13 hours' passage by sea, and they would get before you going by Holyhead or Port-Dynllaen.

3322. You are supposing a railway through South Wales to do that?—You may take a railway through South Wales; I have not gone into that, but I think if you had a railway to Fishguard, and a railway to Holyhead or Port-Dynllaen, equally good, and a line from Dublin to Waterford, Wexford, and so on, that line through Dublin would beat the Welsh line, and do all the Post-office business there.

3323. It would beat the South Wales line?—Yes; the mail through Dublin would beat the mail from Fishguard to Waterford.

3324. That is from London to the South of Ireland?—Yes; I will take it from London to Waterford.

3325. Supposing you take it from the south and south-west of England, from the Land's End to Hampshire, how would you embrace that correspondence; do you think you could get all that by Dublin as well as by Milford and Waterford, supposing you had a railway through South Wales, which is problematical?—Perhaps not quite; a railway through South Wales is problematical, and if that is not done it would be still more in favour of the line to Dublin; but I was going to say, although they would not be able to get much communication from the South or West of England to the South of Ireland, by Dublin, so soon as you would by a direct line from South Wales to Waterford or Cork by a few hours, yet

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I think the expense of a packet establishment there would not answer the difference.

3326. Where are you putting the packet establishment, upon that supposition?—I will take it either from Fishguard to Waterford or from the Land's End to Cork.

3327. Say from Milford, or Fishguard, or Bristol?—Yes, either of those places; I think we should beat it by Dublin.

3328. Supposing you had a packet from Bristol to Waterford, what time would you give that?—I suppose an average of 20 hours.

3329. Mr. *Shaw.*] Are you of opinion, upon the whole, that the route which you propose, either by Holyhead or Port-Dynllaen, for the purpose of an improved communication between London and Dublin, would be a work of great national importance, and well worth any cost that might be incurred for the establishment of it?—Yes, I do not entertain a doubt of it. I have always had a firm conviction on my mind, that sooner or later, with reference to Irish communications, the country will be bound to take the best and the quickest line, whichever of the two that may be, either Holyhead or Port-Dynllaen; and I have no doubt it will be either one or other of those two.

3330. Mr. *Stanley.*] In your opinion, would that line be a remunerating one for those who undertook the formation of the railway?—No, not as a trade line; certainly not.

3331. Mr. *Shaw.*] I suppose, in that answer, you confine your consideration to the prolongation of the railway from Chester?—I think that would be the best line, but that I have no personal knowledge of.

3332. That would be the best with a view to remuneration?—Yes; how far a line could be got through the interior of Wales I do not know. I cannot say it might not be done.

3333. You have said, in your former answer, you think it a work of great national importance; how then would you propose it should be done?—The Government must take some part in it; the country must pay for part of it; it is for the business of the country alone. It costs the country a great deal for the packet establishments; and if what that costs were turned into the maintenance of a railroad, and they had a quicker and better communication by that means, the country would gain, if it cost the same sum of money; and if it cost less money it would gain still more.

3334. Then, although you do not think it would be remunerative in the light of a private speculation, yet you do consider that, upon an enlarged view of the public interests, and as a work of great national importance, it would ultimately be remunerative to the country?—Yes, I think the country, upon the whole, would be gainers by it, taking England and Ireland together. Taking the present cost with the present effects and means, and taking the improved means and advantages, with their costs, they would be great gainers if the costs were equal, and double gainers if the cost of the railway were less.

3335. With reference to the latter part of your last answer, I presume that, if the route we are now considering were completed, you are of opinion that, although the cost of the completion might be considerable in the first instance, yet that in the end there would be a saving of the public money, from the necessity of other means of Post-office communication being superseded?—Exactly so; that would assuredly be the case.

3336. Mr. *Reade.*] Then do you conceive that shutting up the South of Ireland from all direct communication with the South of England and South Wales would be beneficial to the public?—No, I think not; that it would not be shutting up one from the other at all; that the means of communication would be so nearly as quick, even from the most distant points, and certainly quicker from intermediate ones, than now exists, that the public would be gainers even by that. Individual difficulties, of an hour or two, might exist; but, taking it as a whole, and taking the country generally, I believe that would be the most perfect communication between London and Dublin; that with a line or two, the railway on both sides communicating with the largest cities and towns, it would afford the most perfect communication of all.

3337. Mr. *Morgan.*] You are aware that there is very great commercial communication between South Wales and the South of Ireland, namely, between the ports of Newport, Cardiff, Swansea, and Carmarthen, and Waterford and Cork?—Yes, I am quite aware of that.

3338. Do

3338. Do you not think those ports, and the mining districts of South Wales, would suffer very great inconvenience, if the direct communication between South Wales and the South of Ireland were to be stopped, and all the communication made to go round by Dublin?—No, not while we can get the Bristol or west country mails in three or four hours to London. That is the key to the whole thing; you must make London and Dublin the two grand centres.

3339. You would then propose to send a letter from Newport or Swansea to Waterford, round by Dublin?—Yes, I think that would be the best track, and I think so for this reason, they would get there as soon as they do now.

3340. Mr. *Shaw.*] I presume your answer has reference to the Post-office communication?—Yes.

3341. Mr. *Morgan.*] You are aware a letter posted at Swansea, at seven o'clock in the evening, reaches Waterford by noon the next day?—I think that is very possible.

3342. Do you think that would be possible if the direct communication between Milford and Waterford were cut off?—The communication would be only by private vessels carrying bags then, and that would be just as quick as it is now. I again repeat what I stated some time back, looking at the thing as a whole, the disadvantages will be far more than overweighed by the advantages; that you can find out cases of injury there can be no doubt; but whether they will be so numerous as to overweigh the general advantage, is the question.

3343. Mr. *Vivian.*] You referred to the railway coming to Bristol or Weston-super-Mare; how would you communicate from South Wales to that point?—Over the Severn, or by a steam-boat across the Bristol Channel.

3344. With respect to steam-boats across the Bristol Channel, from what points would you communicate with the English shore?—I should think from Cardiff.

3345. Is not the shore at Cardiff very flat?—Yes.

3346. Would it not require a very long pier to establish a landing-place there which would be accessible at all states of the tide?—Rather so; not very long.

3347. Would not that pier always be liable to silt up; would it not be covered with mud every tide?—It would, a little.

3348. Do you consider an eligible landing-place could be made at Cardiff?—Not at dead low-water; the landing-place would have to remain on Pennard-head. There it could be very easily and very cheaply made.

3349. Is there any point upon the Welsh coast you can point out that would afford protection to steam-packets, and ready access at dead low-water?—No, I do not know of one. They want a good route across the Bristol Channel to the New Passage.

3350. Will you point out any spot where such a landing-place could be made in the neighbourhood of Cardiff?—No, I do not know one myself that is accessible for six feet draught of water at all states of the tide.

3351. Then how could a Post-office communication be established across the Channel, from Cardiff to Brean Down?—By means of a jetty at Pennard-head.

3352. What is the distance from Pennard-head to Cardiff?—It might be made in a couple of miles perhaps.

3353. You said the communication should be either across the Channel or over the Severn: I conclude you mean over the Old Passage?—No, I do not; the Old Passage is a very roundabout way, in my mind. If I were making a new mail route, I would cross the New Passage.

3354. In what way would you cross the New Passage?—By means of a couple of rough arched roads down to the low-water mark of the Channel, and across the Channel, by one of Rendel's floating bridges.

3355. Can you form any idea what would be the cost of that?—*£.* 150,000 to 200,000 *l.*

3356. Mr. *Corry.*] In any enlargement of the Holyhead Harbour, do you consider it of importance that it should be considered not only a packet station, but also a harbour of refuge for the passing trade?—Yes; but then comes the question, whether a better harbour of refuge might not be made in the neighbourhood for the same money. I stated before, our instructions must be very differen with a view to the two objects, or there is likely to be a great difference of opinion If a harbour of refuge were an object, I should have a very different set of ideas to work upon.

3357. Mr. *Shaw.*] Is it possible to combine the two without interfering with

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the primary object of a packet station?—Yes; it is very possible to combine the two, if the harbour is suitable.

3358. Mr. *Stanley.*] At present you do not feel yourself competent to form an opinion?—No; because I cannot form a comparison.

3359. Do you not consider that a central line of communication with Ireland would create a great saving in the public expense ultimately?—I think it would.

3360. You are aware that a station at Liverpool at present is kept up at a very great expenditure above the receipts?—I am aware of the great expenditure of keeping up the station at Liverpool.

3361. But with reference to the packets, the expenditure is far above the receipts?—I am not aware of the fact; I think it is very likely.

3362. Mr. *Shaw.*] Then, upon the whole, you are of opinion, that both in respect of great national importance, and ultimately of public economy, the line you recommend, either by Holyhead or Port-Dynllaen, would be most desirable?—I think so, if well carried out.

3363. Mr. *Reade.*] Though you cannot say at what cost it could be effected?—No; my opinion is, that the condensation of the traffic of the despatches, and of the transit between London and Dublin, and condensing it so much by the shortest route, and in the quickest time, would do away with so much of the expense which now exists in two or three other places, as to render it the most eligible and cheapest in the long run.

3364. Mr. *Stanley.*] In your report, in 1838, you state that, in your judgment, a line of railway from Chester to Holyhead, and the improvement of the harbour, would not come far short of two millions sterling in the whole?—Yes.

3365. Do you still entertain that opinion?—I do not think it would come far short of it; but that would depend entirely upon what kind of harbour you make at Holyhead.

3366. Can you separate the cost of a railroad from the cost of improving the harbour?—Yes, I can, if I have means of access to the data upon which I formed my estimate.

3367. Do you think a railway would cost one million and a half?—A line of railway might be safely put down from Chester to Holyhead now at from 20,000*l.* to 24,000*l.* a mile: 20,000*l.* I think would do it through that country; that is the cross line.

3368. That is about 1,600,000*l.*?—Yes, it would not be much short of two millions.

3369. Mr. *Shaw.*] That answer, as regards the cost of the railroad, applies equally to Port-Dynllaen as to Holyhead?—Yes.

3370. Are you able to form any positive opinion as to the relative expense of the routes from Chester to Holyhead, or from Chester to Port-Dynllaen?—I am not.

3371. But as far as you are at present informed you think there would be no material difference?—I formed my judgment upon these grounds. I looked over the line which was surveyed from Chester to Conway, and I knew a little of the country from Conway to Bangor, and across the country, but further I know not. Taking that line which I do know, and taking this country which I have seen without having a plan of it, I am satisfied 20,000*l.* a mile, or as near that as may be, would effect the line from Chester to Holyhead, or, if the country was equally favourable, to Port-Dynllaen.

3372. Have you been much in North Wales?—Yes.

3373. Do you think a line of railroad in that country would be liable to snow?—I think the high line would.

3374. Do you think the coast line would not?—I think not.

3375. You would not apprehend greater obstructions from snow in that country than generally between Liverpool and London?—Not if you take the coast line.

3376. *Chairman.*] Did you inspect the harbour and river of Waterford in June 1838 for the Commissioners under the Act 56 Geo. 3, c. 64, for Improving the Port and Harbour of Waterford?—Yes.

3377. Is the following an extract from your report, dated 1st July 1838?—

"The chief peculiarity of Waterford Harbour, relative to its situation and form is, that it has no bar, properly so called, but is entered from the sea by a fine, deep, open channel between the Hook Point and Dunmore, which continues for a distance of seven miles in a direct (true) north direction, up to Duncannon Fort, having

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having, with one exception only, for a short space, upwards of three fathoms depth at low water, and has of late been very much improved by an additional light at Duncannon Fort, by which means the two now serve as leading lights up the harbour for all vessels within the Hook Light.

"The exception above mentioned to there being three fathoms water at low water up to Duncannon, is a shoal in the channel or sailing course about a mile and a half below that place, and, as I believe, technically called the "bar," however much it may differ in situation and circumstances from the bars which usually obstruct the entrance to a harbour.

"At the time I was there, June the 12th, at low water there was 14 feet water over this shoal, in a line with Duncannon Lights, and as that was at a time, two days only after the lowest spring tides, I should deem 14 feet to be less than the usual average of depth over the shoal at low water; that is, that there is much often more than 14 feet over it than less. Still I think it very likely that under very favourable circumstances for producing low tides, the water may ebb out occasionally to 13, and, on rare occasions, to 12 feet, although the average depth at low water may be 14 feet and upwards."
—Yes.

Mr. *James Pim*, jun. called in; and Examined.

Mr. *J. Pim*, jun.

3378. Mr. *Shaw.*] I BELIEVE you are one of the firm of Boyle, Low, Pim, & Co., bankers, Dublin?—Yes.

3379. Are you acquainted with the present Post-office arrangements, as to the communication between London and Dublin?—I am.

3380. What is your opinion of them in their present state?—I think they are about as inconvenient as could well be contrived.

3381. Will you state the particular objections which occur to your mind with regard to the present communication?—Letters from London are despatched from Kingstown twice each day, at 5 h. 30 m. P. M. and at 10 h. 30 m. P. M.; both those mails remain in Liverpool, I believe, until 7 h. P. M. the following day, although the first despatch from Dublin may, and frequently does arrive at Liverpool at 5 h. A. M.; it is a monstrous thing that letters should remain in the Liverpool post-office in many cases for more than 12 hours before they are sent forward. Again, on the return matters are nearly as bad; the letters which leave the London Post-office at 8 h. P. M. are occasionally delivered in Dublin about seven on the evening of the following day.

3382. Do you think a delivery at so late an hour in the evening of practical utility for commercial purposes?—No; on the contrary, it is very questionable that there is any advantage.

3383. Have you any further observations to make with respect to the present Post-office communication between London and Dublin?—Letters leaving Dublin at the hours I have already spoken of are delivered in London, in the city, under ordinary circumstances, at 9, A. M.; letters are despatched to Dublin at 8, A. M.; the Post-office closes at that time, but by paying a fee you can put letters in till 8 h. 30 m. If the despatch were an hour later, it might possibly give an opportunity of answering letters delivered in London in the usual course of the post. It has twice occurred to me during the last week to have written home by the morning mail, and within an hour of having despatched my letters I have received letters from home, which I should have wished to have attended to in my reply.

3384. You now allude to the despatch of letters from London by the morning mail?—Yes, and practically speaking, letters despatched by the morning mail from London arrive in as good time in Dublin as if they had been sent at eight o'clock in the evening. With respect to the communication between London and Dublin, the inhabitants of Waterford, Belfast, and Limerick, generally speaking, get their letters as quickly as we do in Dublin. They generally arrive in time to be despatched by the inland mails; and, practically speaking, they are placed upon the same footing that we are.

3385. You will find by returns made to the House of Commons, that on 66 days in the last year the packet did not arrive in time to despatch the English letters by the inland mails from Dublin?—I was not aware of such a return.

3386. With regard to the present line of communication from London to Dublin, for passengers as well as letters, you are well acquainted with it?—I have crossed eight or ten times a year, upon an average, within the last seven years, and it has seldom happened that I have not been detained at Liverpool.

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3387. Do you know anything of the depth of water at the bar?—The packets cannot pass for about two hours before and two hours after low-water spring-tides. I have arrived an hour before low water, and consequently we were delayed very nearly three hours.

3388. Do you know whether that occurs periodically at spring-tides?—I know it must occur as a matter of course for some days at spring-tides; and it unfortunately happens with regard to the time of sailing, both from Dublin and Liverpool, that you encounter the spring-tides in their worst possible time. Thus, if we sail from Kingstown at 5 h. 30 m. P.M. during spring-tides, you have to contend with the tide in crossing; and, generally speaking, to use an Irish expression, you arrive in Liverpool just in time to be too late for the tide.

3389. Do you think the harbour of Liverpool is capable of improvement, so as to be made suitable for the purpose of the packet station on the line of communication between London and Dublin?—I should say, quite irrespective of its distance from Dublin, which is a most material objection to Liverpool, it is utterly impossible that it can ever be made suitable for a Post-office communication of so much importance as that between London and Dublin.

3390. *Chairman.*] As a mercantile man, do you make much use of the packet that is despatched at 10 h. 30 m. P.M. from Kingstown?—The largest portion of our London correspondence goes by the 5 h. 30 m. P.M. packet.

3391. Mr. *Shaw.*] But the letters conveyed by both packets are delayed at Liverpool until 7 P.M. the next evening?—Yes. With respect to the letters that are sent by Holyhead, it is right the Committee should be aware that they must be put into the Dublin Post-office before 8 A.M., which is peculiarly inconvenient to all persons engaged in business.

3392. But you are aware the principal use of that morning despatch from Dublin is for the interior of Ireland, not for Dublin?—I am aware of that, but my object is to state the inconvenience to which the mercantile interest of Dublin is subject by the present Post-office arrangements.

3393. In short, to the mercantile interest of Dublin the Holyhead packet is of little practical advantage?—Scarcely any.

3394. You are, I think, as well as being a banker in Dublin, also connected with the Dublin and Kingstown Railway?—I am treasurer of the Dublin and Kingstown Railway Company; and I have, since the formation of that company, taken an active part in its management.

3395. Has your attention been drawn to the proposed communication from London to Dublin, either by way of Holyhead or Port-Dynllaen?—It is a subject to which I have, during the last eight years, given considerable attention.

3396. What is your opinion of the importance of such a route compared with the present line of communication?—If by means of a line of railway either by Holyhead or Port-Dynllaen, we should be able (and I believe it to be quite within the limits of practicability, by a little exertion) to have our letters delivered in Dublin within 16 or 17 hours from the time of departure from London, it would be very difficult indeed to assign a numerical value to the importance of such an improvement.

3397. I need scarcely ask you whether, if such a plan as you now suppose could be completed, the quality of the hours saved would not be vastly more important than even the number of hours it would save?—That distinction constitutes the essence of the improvement in point of time. Two or three hours in this case, practically speaking, makes a difference of 24 hours to us. If we could get our London letters, say from 12 to one o'clock in the day, and we had a couple of hours after that to reply to them, it, in point of fact, would make a difference of 24 hours.

3398. In that case, a letter posted in London, say on Monday evening, would be received in Dublin on Tuesday, and answered on the same day, so that the return letter would be delivered in London on Wednesday morning?—Precisely; that I believe to be practicable; and the advantages of such an arrangement must be enormous, whether as regards the government of the country, or as regards our mercantile and social relations.

3399. Do you think the entire journey from London to Dublin might, by the means suggested, be made in about 16 hours?—I think it may be done within 17 hours.

3400. What rate of travelling per railroad do you calculate upon?—I am inclined to adopt Mr. Cubitt's opinion upon that point, that you cannot, under existing circumstances, safely reckon upon an average speed between the two termini

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termini of a long line of railway greater than 25 miles an hour; and that it will require the trains to travel occasionally at a rate exceeding 35 miles an hour to accomplish the rate of 25 miles an hour throughout.

3401. Are you able to form any opinion upon the relative merits of the two proposed harbours of Holyhead and Port-Dynllaen?—I am not; nor do I believe that, under existing circumstances, any one person is capable of forming an opinion on sufficient grounds.

3402. Have you read the various reports and documents which are before the public with reference to those two harbours?—I should think I have read everything that has been printed by Parliament on the subject.

3403. You are yourself well acquainted with the subject of travelling by railroad?—Yes, I am.

3404. And by steam-packet?—I am better acquainted with railroads than steam-packets.

3405–6. Then, upon the whole, is it your opinion that, as regards the relative merits of those two ports, there are not sufficient data existing upon which to form a sound opinion?—Yes; I think the comparison between the two ports can only be fairly made by taking into consideration a variety of circumstances, the cost of the construction or improvement of the harbour at either forming a most material element; facility of access by railway; and the time it would take to perform the journey by either route.

3407. Mr. *Shaw*.] Do you know whether any estimate has been made by a civil engineer of the expense of the harbour either at Holyhead or Port-Dynllaen?—I do not; I believe there has been none.

3408. Do you think such an estimate would be necessary before the question between them could be decided?—Yes; I think the examination should be gone into most carefully, and in detail; that it is quite useless to attempt to jump to a conclusion on a subject of so much importance, without the most deliberate inquiry by persons who would be at once perfectly impartial and thoroughly competent.

3409. Are you of opinion, from what you have read and yourself know on the subject, that the question is now narrowed to a comparison between those two ports?—I believe the question to be narrowed to a comparison between those two ports, and that until that question be decided, we are not likely to get on with the railway question in connexion with it.

3410. Then you think it of the first importance, practically, that the question of the relative capabilities of those two ports, and the relative advantages of them to the public, should be decided?—Yes, and all matters directly and indirectly connected with them.

3411. *Chairman*.] Do you consider that, upon a harbour being made by Government, capable of admitting the class of vessels we are speaking of, for the facility of communication between the two countries, a railroad of that description would be remunerative, if made at private cost, without assistance from Government?—I do not think that a railroad, constructed as at present, to be worked by locomotive engines, and therefore involving the necessity of having a double line of rails, could possibly be remunerative to private parties, without assistance from Government.

3412. Mr. *Shaw*.] Do you think it would be remunerative to the Government, in point of national importance, and even of national economy, ultimately?—As regards national importance, there can be no doubt at all that the advantages I have already alluded to, both as regards the good government of the country, by facilitating as much as possible the communication between London and Dublin, as regards all mercantile interests, and as regards all our social intercourse, the advantages would be so great as scarcely to be measured by money; and I entertain a very strong opinion that, ultimately, by concentrating in one place the different establishments, which I think could be concentrated under such circumstances, an amount of economy would be arrived at, by which a national saving might be effected.

3413. Do you think the completion of such a plan as you now speak of would be of importance to Ireland, with a view to railway communication through the interior?—I think the first step, and the most important step, as regards the introduction of anything like a general system of railways into Ireland, is to facilitate the intercourse from London to Dublin; I have always been of that opinion.

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3414. Is the Dublin and Kingstown Railway Company, of which you are a member, about to try any new experiment with respect to railway communication at the present moment?—They are about trying an exceedingly interesting experiment upon a prolongation of their line of about a mile and three quarters in length, which has been known by the name of the "Atmospheric Railway," of which I do not like to speak of the future probabilities, but I entertain a very strong expectation, approaching to a conviction, that it will ultimately supersede every other means of locomotion.

3415. You are now about to try that experiment upon an extension of the Dublin and Kingstown Railroad?—Yes.

3416. Supposing that experiment to be successful, do you think it would be possible, by means of an "Atmospheric Railway," to accomplish a line of railway from Chester to either of the ports to which we have referred, Holyhead or Port-Dynllaen, so as to make it a subject of remunerative private speculation?—I should hardly go so far as that; but, as I mentioned before, I entertain a very strong expectation, almost approaching to certainty, that it would be done much more economically than could possibly be effected by means of locomotive power, and that the rate of travelling would be very considerably increased, and the possibility of accident almost entirely removed.

3417. In what time do you think the experiment you are about to make can be satisfactorily tested?—Within the present year.

3418. *Chairman.*] I believe you are aware that the present Post-office establishment at Holyhead is a very expensive one to the Government; a dead loss, in fact?—I believe it is expensive.

3419. Do you know the sum the Government has to pay annually over and above the receipts?—I do not.

3420. Mr. *Shaw.*] Is there any other point connected with the proposed communication between London and Dublin that you would offer your opinion upon to the Committee?—There is one point which I think should be always borne in mind, that regularity in Post-office communication is almost of as great importance as expedition; that a high amount of expedition, attended with uncertainty, is not so desirable as a mode of communication not quite so quick, but more certain. With respect to the cost of extending or re-constructing Holyhead Harbour, or constructing a harbour at Port-Dynllaen, I should not be inclined to charge any interest upon the outlay for such an object. I do believe that a very large national return would be derived from the construction of a suitable harbour at either of those places, from the facility it would afford to vessels to take shelter in distress. It unfortunately happens that we have no returns of the value of refuge harbours; we cannot have any such thing; we can have no return of the number of vessels which are saved from shipwreck.

3421. But are you able to state positively, from your knowledge as a mercantile man, that loss, both of life and property, annually occurs from the want of a refuge harbour on that coast?—There can be no doubt of it; it is one of those things which it is very difficult to prove, but of the truth of which every one must have a moral conviction. It is well known that, in the present state of Holyhead Harbour, many captains are deterred from endeavouring to obtain shelter there, from an apprehension that all the available space within the harbour has been previously occupied; and, therefore, it is a matter that is extremely desirable, that any harbour to be constructed should be of such dimensions as to afford reasonable facility of access, and a reasonable amount of shelter for vessels that would be likely to be placed in circumstances requiring them to avail themselves of that shelter.

3422. Are you aware that there is a very strong feeling entertained by the mercantile community of Ireland generally, and particularly of Dublin, in favour of the proposed new line of communication between London and Dublin?—There is a strong feeling in favour of a line to some port in North Wales. I do not think there is a strong feeling, or indeed any feeling at all, in favour either of Holyhead or Port-Dynllaen in preference, one or the other. Our anxiety is solely that the best may be adopted.

Mr. *Charles Wye Williams*, called in; and Examined.

Mr. *C. Wye Williams.* 3423. Mr. *Shaw.*] YOU are Managing Director of the City of Dublin Steam Packet Company?—I am.

3424. That

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3424. That I believe is the company which contracts with Government for carrying a portion of the letters between Liverpool and Dublin?—We have a contract for the evening mails.

3425. Are you able to state the draught of water of the vessels belonging to your company,—say the Prince and Princess?—The largest class vessels draw about 11 feet, average.

3426. Do you find any inconvenience from the present harbour of Liverpool, in respect of the communication between Liverpool and Dublin?—We are greatly inconvenienced at times by low water. We are occasionally not able to get out or in, and we have of course to lie off the harbour one or two hours at low water, although the harbour is considerably improved; the last new channel, which is called the Victoria Channel, has considerably facilitated the entrance.

3427. I believe even in that channel, at low water, the depth of water over the bar is only about nine feet?—About nine feet at the lowest spring tides; it is said to be more, but I do not believe it is.

3428. And your vessels draw 11 feet?—Yes.

3429. Without desiring you to go particularly into the merits of the harbour of Liverpool, I would ask you, from your general knowledge of steam navigation, whether you do not think it of great importance for the purpose of a packet station, to have a capacious harbour fitted for the reception of a class of steam-vessels at least as large as those now employed by your company between Liverpool and Dublin, so as to insure, as far as possible, certainty in the passage at all seasons of the year?—Undoubtedly; there can be no question of it.

3430. What depth of water should you say was necessary for a harbour suitable for such a purpose?—There should be at all times 15 or 16 feet of water to render it safe.

3431. You must also be aware, from your knowledge of steam navigation, and generally of the use of steam power, that a short sea passage is of very great importance in any given line of communication?—There can be no doubt of that, in connexion with railways.

3432. And that the great object is now, from the recent improvements in travelling by railroad, to make the land journey as long, and the sea voyage as short, comparatively, as possible?—There is nothing so desirable as a short sea voyage, if you are in connexion with a railway on land.

3433. Do you wish to offer any observation upon the harbour of Liverpool, generally?—None; I think it is as perfect now as it is likely to be.

3434. Mr. *Stanley.*] Do you not apprehend that by dredging that channel you would create a bar outside the passage?—It is not in the nature of that harbour to be dredged.

3434*. You maintain the Victoria channel by dredging do you not?—No; the sea opened that, and it maintains itself.

3435. You do not continue dredging it, do you?—No.

3436. Do you not apprehend a bar will be formed outside of that?—No; I rather think it will be improved now.

Jovis, 5° die Maii, 1842.

MEMBERS PRESENT.

Mr. Grogan.	Mr. Reade.
Mr. W. Johnson.	Mr. Shaw.
Mr. Morgan.	Mr. Vivian.
Sir D. Norreys.	

LORD INGESTRE, IN THE CHAIR.

Commander *H. M. Denham,* R.N., F.R.S., called in; and further Examined.

Commander *H. M. Denham,* R.N. F.R.S.

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3437. Mr. *Shaw.*] YOU are a Marine Surveyor to the Board of Admiralty?—Yes.

3438. Have you made a survey of the harbour of Liverpool?—I have.

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3439. Have the goodness to look at that survey, made by order of the Admiralty in 1813, and returned to the House of Commons (*It was shown to the Witness*). Do you think you can furnish the Committee with a more recent and more complete survey than that?—I can.

3440. Will you have the goodness to do so?—This survey of 1813 was doubtless correct at that time, but from the great changes which have taken place, it is now perfectly obsolete. I beg to hand in a survey published by the Admiralty, which was taken by me in the year 1838. (*The same was handed in*).

3441. That was taken by order of the Board of Admiralty?—Yes.

3442. And I believe the Board was very well satisfied with that survey?—Yes; they have not thought it necessary to call for any other; it is the survey now in use for Her Majesty's service, and is preserved in the archives of Liverpool and of Government.

3443. Did the Admiralty express their approbation of that survey?—They did in a very marked way, on its completion; their Lordships were pleased to address me as follows:—

"Sir, Admiralty, 20 March 1835.

"My Lords Commissioners of Admiralty having taken into their consideration your meritorious services in the various surveys on which you have been employed, and appreciating highly the talent which you have displayed, and having a high sense also of the advantage accruing from the completion of the survey of the port and harbour of Liverpool and the neighbouring coast, their Lordships command me to acquaint you that they have been pleased, as an especial mark of their approbation, to sign a commission promoting you to the rank of Commander in the Royal Navy.

"I am, &c.
"*George Dawson*."

"Lieutenant Henry Mangles Denham, 73, Pall Mall."

I beg also to refer you to the following correspondence between the local authorities and the Admiralty:—

"My Lords, Liverpool, 2 July 1834.

"The committee for the affairs of the estate of the trustees of Liverpool unanimously requested me to express to your Lordships the high sense they entertain of the valuable services rendered to this port by Lieut. Denham, R.N. in perfecting so excellent a chart of its approaches in his accurate survey of the new channel, and the very great attention he has paid in assisting to place the necessary lights, buoys, and marks; in the performance of which arduous and important duties he has shown equal skill and accuracy united with unremitting application and perseverance. The committee think it only due to Lieut. Denham, that they should thus bear testimony to his merits, which they have the further pleasure of informing you have this day been acknowledged by the Common Council of this town presenting him with the freedom of the borough.

"I have, &c.

"To the Right hon. the Lords
"Commissioners of the Admiralty." (signed) "*Chas. Lawrence*,
Chairman.

"Lieutenant Denham's survey having evident marks of the labour, scientific ability and attention exercised in its progress and completion, the committee think it due to him and his coadjutors (Lieut. Robinson and Mr. Bedford), to the public, and to themselves, to make these statements; and they have now only to congratulate the shipping interests of this great commercial port on possessing a chart of its intricate entrances which can be relied upon with perfect confidence, but more particularly in the clear illustration of the approach to Liverpool by the new channel, whereby there can be no doubt, that in addition to the facility of ingress and egress at almost all times of the tide, the risk of life and property will be materially diminished.

(signed) "*John Wright*, Mayor, *William Smith*,
"*Charles Horsfall*, *William Potter*,
"*John Tobin*, *Thomas Leathom*,
"*William Ripley*,

"21 October 1834." "Members of the Dock Committee."

This

This was after the corporation had accompanied me throughout the navigation :—

"My Lord, Town Hall, Liverpool, 5 March 1835.

"I am requested by the Common Council of this town to address your Lordship on the subject of a chart of the Mersey, &c. being now completed. The indefatigable exertions and laborious efforts of Lieut. Denham and his coadjutors have elicited the utmost acknowledgments from all those public bodies in this town who have been cognizant of them, &c. I am desired further to make application to your Lordship that the Council may be favoured with a copy of the chart on its present scale, it being their wish to preserve it with other muniments of this corporation.

"I have, &c.

(signed) "*James Aspinall*, Mayor.

"To the First Lord of the Admiralty."

3444. I presume then you are well acquainted with the port of Liverpool, and the River Mersey?—I conceive I am perfectly so.

3445. Will you be so good as to state whether, in your opinion, the harbour of Liverpool is eligible for a packet station, particularly a packet station upon the direct line between the metropolis and Dublin?—I would say, that supposing Liverpool to be without a railroad, it is about the last place upon the whole range of the coast that should be selected for a packet station.

3446. Will you state your reasons for that opinion?—We have here a bay, called Liverpool Bay, with banks ranging, and dangers extending 25 miles off the actual orifice of the river.

3447. Do you mean up to the light ship?—No; this sweep of danger commences off the mouth of the Dee estuary; the dangers warned off by lights, supposing the outermost light vessel to be at her station, extends 13 miles from the high-water embouchure of the river; even the channel which I had the satisfaction of forcing through by artificial means there, is eleven miles from the docks.

3448. That channel, I believe, is now called the "Victoria Channel"?—Locally it is, but not on the Admiralty chart; it is called there "The New Cut narrowed by Commander Denham." The question of calling it the "Victoria Channel" was mooted at the time, but inasmuch as it was the original new channel of 1833, which I delineated as the earliest entrance into Liverpool, so retaining its main trunk as to render my operations in 1838 but a new entrance to the original channel, the Admiralty hydrographer, Captain Beaufort, considered it was not necessary to throw any distinctive character upon a channel of five years' usage, but should be simply noticed on the chart as "The New Cut by Commander Denham."

3449. Is that channel at present in general use?—It is always used towards low-water periods; indeed, from half-ebb to half-flood, six hours, it is the only inlet to the port; and for all vessels bound to the northward the previous six hours, at high-water periods, leaving or running into the port, the shortest way westward is by the Rock channel, *i. e.* by the Rock lighthouse; but the new channel is the only channel left for the exigencies of the port after half-tide, the Rock gut having but two feet water.

3450. Have you any objections generally to the port of Liverpool as a packet station?—Having stated that the hazards of shallow water extend so far off, and then having to remark that they depend entirely on their approach upon a floating light (this floating light having been known to be driven away, and even thrown upon her beam ends very lately, negativing her as much as breaking adrift), renders it most hazardous, and, as we had sad evidence on record, fatal in its consequences, running for that bay whenever the objects are likely to be shrouded by haze or storm.

3451. Do you consider, then, a harbour depending in its approach upon a floating light objectionable?—Always doubtful and perplexing; frequently fatal.

3452. And that fixed lights are always to be preferred?—Yes. This bay has the misfortune of receiving, whenever there is any easting in the wind, the whole drift smoke of a manufacturing district which obscures everything; the light-ship herself is obliged to fire guns at those hours when she expects the packets are within hearing; gongs and bells are kept going, and blue lights are used

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used during the clearest nights to throw the light ships farther to the westward than her lanterns can. Supposing, however, the packet to overcome these difficulties without accident by slacking her speed, (which is a sad objection to a packet so fitted as to give her all the advantages of speed across the Channel), probably two or three hours, or having to wander about Liverpool bay at half speed, to catch the direction of the light ship signals, an anomaly, with packets starting promptly under the power and capacity with which these vessels have been furnished.

3453. What is the cause of their having to slacken their speed?—When the commanders anticipate by the run of the vessel that she will arrive at her due time, and that the tide will not suit so as to enable her to get over the bar, they slacken, and on making the light ship, hover about her perhaps a couple of hours for rise of tide; all this time 13 miles off her landing place, and frequently missing the trains.

3454. Is there a bar at the entrance of the river?—A belt of sands, in fact, across the bay.

3455. Across both the entrances?—Yes, one is fordable; the Rock Channel, as it is called, off the lighthouse, has but 18 inches at low-water great springs; it ceases to be of any use after the half-ebb, and until half-flood again; and there not being more than 10 feet of water, and that being so near the draught of the packet, and so frequently occurring at her starting time, if there is the slightest scud of the sea they would be sure to strike; hence detention from precaution that subverts all inland arrangements.

3456. What depth of water is over the bar at low water in the new channel?—Ten feet; a pinching state of tide that occurs every fortnight, ranging over two hours on each side of six o'clock, low water; so that you have, out of 14 days, four evenings and four mornings which, presenting the difficulty complained of, they cannot approach within 10 and 11 miles if they arrive later than an hour before low water, or earlier than an hour after low water.

3457. What is the distance from Liverpool to this bar?—Taking it to the actual bar it is eleven miles, but taking it at the Fair-way beacon, just outside the bar, which must be considered to be its termination, and essentially the point to make, it is twelve miles.

3458. What is the situation of a steam-vessel lying outside that bar waiting for water in the winter?—A steamer slackens her speed, keeps her lead going, and so stands off and on, or makes a sweep, as shall preserve this point in view, lest a haze should obscure the Bell beacon; or if she is waiting for the Rock channel bar, which they sometimes do in easterly gales, having the light ship, they will manœuvre likewise around her.

3459. Supposing the weather to be rough, do you consider a vessel under such circumstances exposed to danger?—Not a steamer, if she stops in time in the open sea, and whether she makes much way or not, so that she can hold her own, she is not in danger, but in great discomfiture and vexation to all on board.

3460. Do you not consider the entrance of the harbour from the sea and outside the new channel, a dangerous situation for a vessel to be in in rough weather, whether a steamer or any other vessel?—That which would be instant and imminent danger to a sailing vessel is not so to a steamer; a vessel arriving at a young tide, not being able to work off, must drift on, and that has been the case in many fatal instances; but a steamer can, unless defective in her machinery, or in want of fuel, hold her own, enduring delay and uneasy motion.

3461. Then you consider delay as the principal objection in the case of a steam-vessel?—Yes; I knew an instance in 1839 of a packet, under the command of the late Capt. Townley; he took refuge in Beaumaris rather than run to Liverpool, under circumstances in which he had reason to think the light-ship would be adrift, and in fact she was so.

3462. Was that in the January gale?—Yes.

3463. Is there a liability to fog in the Liverpool harbour?—There is not so much a liability to fog, as to an artificial atmosphere which is driven over the bay immediately the wind sets from the south-east; it is as bad as any fog; and as easterly winds are generally hazy, it is an aggravated state of haze in that case. I have been on board the light-vessel myself four days and nights, and never saw an object on land or a buoy, even at a mile inshore of us.

3464. When

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3464. When you have entered the new channel, what is the breadth of it?—The actual breadth of the new channel bar is one-third of a mile.

3465. How much of that is of the depth you have spoken of at low water?—That ranges three-fourths of a mile in and out; you then come to the body of the original new channel, which averages three-fourths of a mile in width all the way up its course.

3466. Is the navigation at the entrance of the Channel difficult?—That depends on clear weather; but if contrary, and there is much sea, so as to obscure the buoys, and the spoon-drift spray, as it is called, will submerse them, or you cannot see the lighthouse on Crosby shore, six miles off, which is frequently the case, you must depend upon the light-vessel which lies between you and it at the inner end of the channel, without concert with the shore light, and the slightest deviation of that light-vessel from her station, or your bearing of her, would lead to instant wreck.

3467. Is there considerable trade upon the river?—There is considerable trade, to the amount of some 16,000 vessels per annum. It is often a crowded navigation as you get into the channels within the bars.

3468. Do you consider that that exposes packets to any particular inconvenience or danger?—In foggy weather or hazy nights, particularly so, not only from the sailing vessels which may be either drifting up, working out, or at anchor, but from other steamers passing in and out of the port.

3469. Do you consider there is any liability to collision from the circumstances to which you have alluded?—Certainly, great liability; it must be attributed to the most anxious activity, but loss of speed, that more disasters have been averted.

3470. Do you know whether there is any uniform system adopted of lighting steamers and other vessels entering the port?—None. I consequently drew up the following remarks and propositions respecting steamers' lights and their passing each other, in 1839, illustrated by a diagram; "No general system of lights exists at Liverpool; some carry three lights, one at foremast head and one at the fore-part of each paddle-box; some carry the upper light at the fore-part of the vessel, some carry a red light on starboard paddle-box, and a plain light at the opposite paddle-box and mast-head, some carry lights on their quarters, some a middle light at the bowsprit end; all, however, attend to one rule, and that is in passing each other on their starboard sides; but I understand the reverse is observed at other ports, which has naturally been attended with collision when a Liverpool vessel gets amongst them. Now it is to be wished that a compulsory general rule were introduced, and I submit that three plain lights, one on the foremast head, and one on the fore-part of each paddle-box (not to throw any light after the beam), cannot fail to indicate the position of the vessel; and as it is most important to know when the rule should be departed from (as in the case of two steamers suddenly discovering each other in rounding a point of land, or closing in a fog), I propose that the starboard paddle-box light should be masked so as to cross the line of keel direction at an angle of 17 degrees towards the larboard bow. It would then be simply thus: if you ever perceive the three lights of a steamer (which must be in a vertical triangle if ever seen at all) on your larboard bow, then you must starboard your helms and cross to the right side until respectively on the starboard bow of each other. If, however, you do not see the three lights, it is certain you have so advanced on each other's forward track as to have shut in the starboard light, and if you attempt to recover the right side by crossing, you will in all probability run into each other. It is then that the rule should be abandoned, and each vessel keep her previous course. I annex a diagram to explain my plan, and have assumed the starboard side as the rule side. The plan will apply conversely. In the case of other craft and steamers, I can only suggest that whilst the steamer must in all cases give way (or stop if risking a shoal), yet it should be imperative that the sailing vessel show a light over her quarter towards the approaching steamer. Of course the showing the lantern in time depends upon the look-out on board sailing vessels; a fixed light on each quarter of sailing vessels would be well when in pilot waters. This is a point not at all settled as regards Liverpool; vessels at anchor, however, are expected to keep a light up at the fore-stay."

See Plan, No. 4.

3471. *Chairman.*] Can you furnish the Committee with that diagram, showing what arrangements you propose for the general lighting of steam-vessels

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vessels on the coast of England?—I beg to hand in a copy of the diagram illustrating the above.

[*The same was handed in.*]

3472. Mr. *Shaw.*] Are you of opinion that any considerable danger arises from the want of uniformity in the lighting of vessels to which you have referred?—Certainly. The Trinity Board have done as much as lies in their power lately, by ordering on what tack vessels should pass each other; that is a general rule which they must observe; but as to what way a vessel is coming, the lights do not by any rule at present indicate.

3473. One general system of lighting, I believe, is adopted by the steam packets?—I understand so.

3474. Are you aware whether any power exists of enforcing that system with reference to other vessels?—I believe not. The Steam Navigation Inquiry took my evidence upon that point; but we have heard of no rule, except that of passing each other.

3475. No rule by which to guide the system of lighting vessels generally?—No; each packet has its own; and in Liverpool, I believe, the Dublin Steam Packet Company is the only party of serious observance as to uniformity in lighting their vessels.

3476. That must be peculiarly inconvenient and dangerous to vessels plying between Liverpool and Dublin, on account of the very crowded state of the river to which you have alluded?—Yes; as well as the course being somewhat crowded all the way down to Anglesea; it is likewise the fair-way track of all the trading steamers from Dublin and the South of Ireland.

3477. And independent of fogs and heavy weather, the steam-vessels for a considerable part of the year leave Liverpool after dark?—They do. The only way of getting over the detention of leaving at five o'clock was by putting packets on to eight o'clock, which involved darkness, however, during six months of the year, for departing and arriving packets; when at five o'clock they were only in the depth of winter obliged to navigate in the dark, but when it came to eight o'clock, they were thrown completely into a dark period of 24 hours for four months of the year, and more.

3478. The difficulty of navigating the river in the dark forms one of the principal objections, in your mind, to Liverpool, as a packet station?—It does, with respect to its approaches.

3479. Can you state what the condition of the pier for the landing at Liverpool is?—The packet wharf, being a part of what is called St. George's Dock Wharf, as being the central place for landing near, is adopted; but whether it be that or any other, there is not a single dock or wharf face upon the Mersey which extends out to the low-water mark.

3480. What is the consequence of that, as regards the packets?—The packets arriving as they do, and leaving, as they always have to do, at the earliest or latest, *i. e.*, lowest state of tides, cannot get within, I would say, 200 yards, or from that to 300 yards, and they lie at anchor in the stream of the river. If a carriage is to go off, it must be embarked in the course of the day by the packet coming alongside, and the mails and passengers get on board of her by means of a boat; and the steepness of the wharf and the zigzag state of the steps and slips, the intervening wooden stages, covered with slimy mud, a routine open to all the river ferry steamers, at the same time the having to pass over those steamers' decks, presents a scene of confusion which cannot be described.

3481. Generally speaking, the passengers have to go in row-boats?—Yes, constantly.

3482. Can you form any opinion as to the average number of times in the course of a given period when the steam-packets can lie alongside the pier?—I should say, putting all the times together, she would not lie alongside as many days as would make one month out of the twelve. To give an instance how far starting at five o'clock drove them into contrivances, and what the public were exposed to before the new channel was developed in 1834, I will refer to what I have stated in the preface to my sailing directions from Port Lynas to Liverpool: "The survey was published as it proceeded, by permission of their Lordships, on its working scale of four inches to the mile; the local intercourse of 13,000 sail of vessels was thus provided for at all hours of the tide, night or day, hitherto shut out for four hours of every twelve. The 261 cases per annum

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annum of mail-boat delay in starting for and arriving from Dublin soon diminished, whilst a progressive increase of local tonnage, from 1,500,000 to 2,000,000 per annum, followed. But as each year up to 1839 produced some addition to or change in the order of beaconage, according as I detected the immediate necessity, the Admiralty hydrographer, Captain Beaufort, most considerately admitted the inducement of withholding my remarks and sailing directions until the great change which I predicted in June 1838 should be defined, and if possible eventually provided for. My report of October 4th following not only defined and proposed a remedy, but unhappily had to suggest an interdiction as to low-water intercourse until that proposition should be worked out." The necessity of interdicting night intercourse with the port was an argument (however reluctantly received) irresistible, that something ought to be done to avert the further apprehensions I entertained of even the existing gutter-way through the original bar silting up before another passage could be opened, unless the most prompt and vigorous efforts were adopted. With such means as were conceded I set to work, undertaking to force and open another line of entrance into the body of the identical new channel, which still preserved its depth and essential feature up the inner two-thirds. The months of November and December 1838, were dedicated, through all turbulence and rigor of season, and so much effected as to justify the proposition of at once erecting a lighthouse on Crosby shore, to come into action by the April following, in which month I guaranteed the new passage to be ready, and thus restore the low-water intercourse to steamers and coasting craft, whilst the homeward voyagers at the fall of the year could receive the announcement, and be prepared for the great change of course into the new channel. Her Majesty's mail-packets to Ireland had relapsed into the tidal detentions of 1832–33, *i. e.* not proceeding out of the Mersey on spring tides for two hours after the mail had been put on board, nor getting into port for the like time after arriving in the bay from Dublin; their hour of starting was, however, altered from 5 to 8 o'clock; the former hour brought them always at the bar by low-water springs; the latter hour ensures at the least from 5 to 10 feet lift of tide in all the avenues, though entailing darkness six months of the year on departing mails. This delay occurred again then in 1838, in consequence of the bar not being cleared as it might have been under proper appropriation of means; but the old routine of taking the vessels out to a place called Wallasey Hole, round the Rock lighthouse, had in the meantime become impossible, from the silting up of the Beggar's Patch Bar below it, so that it remained for passengers to go in a smaller packet to be hired to carry passengers down to what they call the North-east Buoy, at the junction of the Horse and Rock Channels, at a distance of nine miles from the dock-head.

3483. Is the north-east buoy the place where the packet now lies when it cannot pass over the bar?—It is, and for the time the banks are so uncovered to the westward, as to leave it tolerably smooth anchorage; but she has to go out there always in the middle of the day, at extra expense of fuel, to take up her position, and then the passengers go out by boats in the night.

3484. Does it frequently happen that the packet is obliged to take up her position at that north-east buoy?—It would frequently occur that they would do so, but they have found it better to ship the passengers, and let them take their suppers, and go to bed, and remain quietly at anchorage off St. George's Pier, starting at one or two hours after they have embarked, than to subject them to trans-shipment outside, and so go out at once.

3485. Is time saved by that?—I do not know that time is saved, but it produces a certainty of transfer which the other mode did not; I have known the smaller steamer, when attempting the transfer, to bring all the passengers back, because they could not transfer them to the larger vessel, and to be for hours in the after their return under a freshening gale, because they could not land at Liverpool.

3486. Is there much mud or silt in the channel at Liverpool?—There is a great deal of sand at what is called the "Devil's Bank" and "Pluckington Shelf," and off St. George's Pier there is a quicksand, which it is impossible to walk on, and in consequence of the mud being held in solution these slips, steps, and stages become dangerous to walk upon; and this silting and mud deposit is aggravated by all the dock dredging being cast into the river abreast of the docks; it has been stated at 90,000 cubic yards per annum.

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3487. Which renders embarking more than usually uncomfortable, even by means of row-boats?—The word "comfort" cannot be used in connexion with it in any sense: it is matter of no choice, but necessity and nothing else, which induces people to put up with it. There is one embarkation takes place at the opposite side of the river, which with the prevailing winds is much smoother; that is since the Chester and Crewe Railway has been opened.

3488. There is no pier on that side?—No.

3489. And the vessel never can go alongside there?—No.

3490. Sir *Denham Norreys*.] Will you be good enough to state how many days during a month the packet on an average must necessarily be detained on account of the state of the water at the bar?—Eight tides during the month, it would be impossible for a vessel to go out, and that will occur starting at the stated hour of five; at the low water of that time, and an hour on each side of it, she would be detained; that will be four tides every month, each way, arriving and departing, or eight positive detentions per month, say fifty days out of the year.

3491. Mr. *W. Johnson*.] Then if the vessel is detained in the Liverpool river, that must render the mail so much later in Dublin?—Yes, that follows, more or less, and with similar effect on the return. It often happens that the packet arrives too late for any of the morning trains.

3492. Mr. *Shaw*.] As to the hour of departure, it is now seven o'clock?—Yes; and that is nearly as bad as it can be. It would be certainly worse if it was six, because at that hour it is dead low water upon spring tides.

3493. Sir *Denham Norreys*.] That answer as to the number of days the packets are detained applies to the return from Dublin also?—Yes.

3494. Has your experience led you to think there is local tendency to fog greater in some situations than in others?—Certainly.

3495. And generally, are fogs more frequent in estuaries and channels than in the open sea?—Yes; but it depends upon whether the shore is high or flat.

3496. Supposing a flat shore, do you think a shore of that kind has a greater tendency to fog than a bold shore?—I do; though high hilly land arrests fog as it passes.

3497. Have you found any peculiar tendency to fog about the coasts of Lancashire, which are generally low?—Yes; all the coast from Seaforth or Bootle, round towards Southport, taking in the Formby Land, is subject to a miasma. The sand hills give you the effect of dryness on the face of them; but as the whole of the land within that high-water margin is almost below high-water level, and the drainage is not very perfect, it is subject to miasma, so much so as to affect the lights and leading marks situated on Formby Land.

3498. Do you find the Bristol Channel more liable to fogs than the open sea would be?—What I have observed is entirely local effect; for instance, in arriving upon the south shore, in the neighbourhood of Bridgewater, you would suppose it was shrouded by the smoke of a manufacturing region, from the quantity of exhalation going on; and it does apply also to the coast from Cardiff to the Wye, where the vast flats are inclosed by sea-walls; but in other respects I do not think the Bristol Channel is subject to more than the effects which the northern shore must imbibe from the drift of south-west gales, carrying, not the fogs, but the south-west mists, periods when the Hangman Hills are shrouded with mist.

3499. Have you any theory with respect to the formation of fogs which would lead to an expectation of where they would be likely to be found in more abundance than in other places?—Whenever we are upon coasts lying in an eastern aspect, with an easterly wind coming off, we have always a hazy, dense state of atmosphere, more or less, therefore I attribute such to the proximity of land, and no other cause.

3500. Then fogs you conceive to arise from the land, and to be carried to sea?—Yes, that is my impression, except the effects of summer heat upon ocean water.

3501. That, of course, has reference to your previous answer, that the form of coast and state of drainage had reference to the formation of fogs or otherwise?—Yes, but not upon the coast of Lancashire generally; only off low points.

3502. Mr. *Reade*.] And generally speaking the Bridgewater part of the Bristol

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Bristol Channel is subject to fogs, and the Brean Down part is not?—Yes, except what may hang about it on south-west winds.

3503. Mr. *Shaw*.] Do you consider the port of Liverpool peculiarly ineligible as a packet station as combined with a commercial port?—Yes, I consider the objects so very different that the character must be different; that that which may he good or sufficient for a commercial port, is not only insufficient for Post-office purposes, but that it entails inconveniences and risks which ought not to be in the way of a Post-office packet communication; and now that the instant starting order of late years has brought this to such a mail-coach proceeding, it seems almost incompatible that any place destined for prompt departure and arrival of packets should be intimately connected or dependent upon a local guardianship, whose objects are chiefly commercial arrangements.

3504. Have you known the American authorities express any opinion as to the desirableness of separating the place of landing for their letters from the destination of the vessel which might contain a cargo, and on that account require to be landed at a commercial port?—Circumstances induced the late minister from America (Mr. Stevenson) to invite me to report upon how far certain delays of the New York packet ships arriving off Liverpool, in south-east winds (having made a very fair voyage that far, being detained between Holyhead and Liverpool four or five days, telegraphed each day and perhaps twice a day, making no way, and all the time the mail bags would not be landed until at her cargo destination), might be averted, and a proposition was made, which I believe has been entertained by several of the commanders of those packets, that if they were authorized they would stretch across and land at a harbour which has lately been opened and lighted, and which has wharfs and deep-water moorings, and a railway connected with it, called Port Fleetwood; that inasmuch as the same retarding wind for getting up to Liverpool would afford a leading course to the mouth of the former, and within two miles of the railway, she could, by proceeding off there, land her mail bags and passengers, they might proceed by railroad to Liverpool, Manchester, and London, whilst the ship would be returning to her beating ground off Liverpool; but when the ship has a paramountly-conceived duty, that is, working up to her cargo port, though losing as much upon every ebb as she has gained upon the flood, she may be detained four or five days, notwithstanding a hired steamer may be looking for her, an occurrence within the last twelve months; and so far it has been entertained that it would be desirable to land passengers and mail bags at any favouring spot, without respect to the ship's cargo destination.

3505. Do you consider that applicable to all Post-office packets?—Yes; it is a pity, allowing them to be amply prepared to receive packets, that they should run the whole distance, like from Holyhead to Liverpool, which is doubling the length of voyage, when they could land at the nearest promontory of the kingdom and send the mails on, even without a railroad, with less positive delay than they have been, and are now, subjected to; for it is not a matter of the mere distance they run, it is the time of arriving and consequence of missing the train, whereby the mail and passengers may and have laid idle for seven or eight hours, and all the previous arrangements for celerity defeated.

3506. *Chairman*.] In the event of a railroad being made to any port in North Wales, would it be an advantage to the trade generally to be able to land their passengers and despatches at that port if they wish it?—Most certainly; I should however propose, in that case, a sort of steam tender being at such a port for the purpose of interception; it would not be convenient for the ship herself to stand right in; a great deviation from her course, and getting into narrow water with intent to anchor, might entail risk.

3507. Mr. *Reade*.] It might affect her insurance?—It might; and therefore great inconveniences or disputes, I can understand, would occur, by the ship standing right in; but by a steam-boat standing out from the roadstead, alongside of the ship, and taking from her what it was desirable to land, whether it were only passengers or mail bags, the present delays would he averted.

3508. Mr. *Grogan*.] You know the mail steam-boats on the station between Liverpool and Kingstown?—I know Her Majesty's vessels; there are contract vessels also.

3509. What is the draught of the Merlin and Medusa, and vessels of that class?—About 10 feet; it was intended to be nine, but they were added to by false keeling, which has increased it to about 10 perhaps, showing the fallacy of attempting to get a shallow vessel through a Channel sea passage.

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3510. Have you any doubt the Government boats were made of a shallow draught of water in order to suit the harbour?—I think they were; I can only account for their drawing so little water under such an arrangement of power and tonnage, with that view.

3511. And they have been obliged to deepen their hold in the water to make them steady?—Yes, I understand so; to prevent rolling.

3512. And notwithstanding that they were built for the purpose of the harbour, the shallowness of the water frequently compels them to lose two hours on their voyage?—Yes; more or less.

3513. Consequently that is a serious objection to Liverpool as a permanent station for mail boats?—Certainly. If you have to adapt them to the shallowness of the water, it takes away from them all that powerful impetus which a vessel drawing 12 or 14 feet water would have, and which is essential to her when she gets into the Irish Channel, otherwise she would be detained more than she is. If, however, you give her that necessary draught she would be under the same detention as the Halifax steam-packets are. It is grievous to think that those steam-packets, whose hours have been counted from Halifax to Liverpool, sometimes lie three and four hours outside the bar; and yet so little is that deemed locally an objection, or anything inimical to Liverpool as a packet station, that there have been petitions, I understand, from Liverpool to have the West India mail steamers stationed there, vessels drawing about 17 feet.

3514. Mr. *Shaw*.] What depth of water do you think there ought to be in a harbour for the use of steam-vessels sufficiently large to make the passage across the Irish Channel with all the certainty and despatch that is attainable at all seasons of the year?—There should not be less than three fathoms (18 feet) upon any bar, and never less than that where they berth.

3515. *Chairman*.] Do you conceive a red light and a green light would be advisable colours to use in a light-house, one on each side?—A green light I would not propose, from finding it a receding colour, so that you never can transmit it the distance you require; a red light is the only colour distinction we can employ.

3516. Cannot you use yellow?—The natural flame may be called yellow, and green becomes yellow in the distance. We have tried blue for a light-house, but cannot adopt any other colour distinction but red.

3517. Mr. *Reade*.] Referring to your evidence yesterday, as to Waterford Harbour, how long would that state of the tide which produces the dead low water upon the bar continue; how many hours?—If upon a falling tide, two hours; if upon a rising tide, but one hour.

3518. How often would that occur in the course of a month?—I should say four times in a month.

3519. Would not a vessel obtain shelter under Creden Head from those winds which blow into the mouth of the harbour at Waterford during the low-water period?—No; the deep water does not lie round the point enough.

3520. Supposing the wind were blowing right into the harbour, could not a vessel obtain temporary shelter under Creden Head from those peculiar winds?—Not without improvement by pier or breakwater.

3521. But Creden Head, nevertheless, affords a shelter to vessels in a certain state of wind?—Not if the wind is right on, or blowing from the east, because the nature of the low-water feature at Creden Head is too flat, and water too shallow for a vessel to ride in; she must ground at low water; and if she lies sufficiently out to lie afloat, she must be exposed to the fetch of the wind.

3522. Are you aware that two lights have been erected at Duncannon for the guidance of vessels over that bar?—Yes.

3523. Are you aware that the Milford packets have been removed from Dunmore to Waterford?—Yes.

3524. Have you ever heard that they experienced any interruption in navigating the river up to the Cave, Waterford?—I have not.

3525. That change was made by the authority of the Admiralty?—Yes.

3526. Do you suppose the Government would still persist in that system if there were any possible danger to be apprehended from the navigation?—Certainly not.

3527. Is it not likely that improved vessels would not require more water than those which are now plying between Milford and Waterford?—They need not, except for stability and power at sea.

3528. What

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3528. What wind is most to be apprehended over the bar at Waterford?—South-south-west.

3529. How much would the effect of a high wind from that quarter increase the depth of water over the bar, do you conceive?—Scarcely at all; not sensibly, I should say.

3530. Have not you heard the effect of the wind blowing up the harbour at Waterford affects the river even so high up as the quay?—Yes; but I rather take those rises up of rivers to result from the pressure of the tidal water meeting the freshes, which must end in a rise; but I do not think in the wide bar part of Waterford estuary there would be any sensible effect from the pressure; certainly not so much as to neutralize the *send* (pitching) which the sea, carried by the wind right in, would occasion to vessels, and add to their draught.

3531. What is the course from Brean Down to Waterford?—No straight course can be taken from Brean Down to Waterford; you can only take a course about north-west and by west for the first 90 miles; that brings you off the Smalls.

3532. What would be the course from the Smalls?—You have a course of north-west and by north, of 60 more miles to Waterford, that is to the Hook, making 150 miles from Brean Down.

3533. If a vessel should leave Brean Down at three o'clock in the morning, what time would you give her to get to the Hook or to the bar?—Sixteen hours, I should say, to the Hook, that would be 18 hours to Waterford.

3534. What would you calculate her rate of steaming at?—Nine miles an hour.

3535. That would bring it to seven o'clock in the evening?—Yes.

3536. Would that bring her nearly to the time of high water to the bar, starting at three o'clock, A. M.?—Allowing her time of arriving to be generally at the same hour, it must fall once in every fortnight at dead low water. There is a low-water instant applicable to all hours; it would bring her there at high water sometimes, but it must bring her once a fortnight at low water.

3537. It would not bring her to low water, spring tides?—As the low water there would be six o'clock, she would not arrive at low water springs; she would arrive at two hours' flood upon spring tides.

3538. That is favourable for crossing the bar?—Yes.

3539. I believe any wind to the south is favourable from Brean Down to Waterford?—Yes.

3540. Mr. *Morgan*.] You answered some questions just now about fogs; in which passage would a vessel be most likely to encounter fogs, the passage from Waterford to Hobb's Point, or from Waterford to Brean Down?—From Waterford to Brean Down; but it is not a casualty that must be calculated upon as likely to affect the passage. It might occur, and is certainly more likely to occur in the passage to Brean Down.

3541. *Chairman*.] But not likely to have much effect in either case?—No.

3542. Mr. *Reade*.] The fogs are generally above Brean Down rather than below it?—Yes; there is one place below it, off Bridgewater, which is subject to fogs, and the capping of Ilfracombe and Hermer Land on south-west winds.

Lunæ, 6° *die Junii*, 1842.

MEMBERS PRESENT.

Mr. Corry.
Lord Emlyn.
Sir Robert Ferguson.
Mr. Grogan.
Mr. Miles.

Mr. Morgan.
Lord Newry.
Mr. Reade.
Mr. Stanley.

LORD INGESTRE, IN THE CHAIR.

Captain *Luke Smithett*, called in; and Examined.

Capt. *L. Smithett*.

3543. Lord *Newry*.] WHAT are you?—I am Commander of one of Her Majesty's packets on the Dover station.

3544. Were you formerly on the station between Portpatrick and Donaghadee?—Yes.

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3545. How long?—I was there from the commencement of the steam communication with the North of Ireland; I went down in March 1825, and opened the station, and I remained there until 1831.

3546. During that time, how many times did you miss carrying the mail?—At that time we were more frequent in our interruptions than of late years, because the harbours then were in a very unfinished state; we might miss four or five times in the year; but I am told that since I left the harbours have been improved, and consequently the interruptions have been less frequent.

3547. Do you remember at all the number of times the vessels were detained during the last year you were on the station?—I think in 1830 I was prevented starting from Portpatrick five days, and the other packet about the same number of days; and there were only three days I was unable to leave Donaghadee.

3548. The five days you were detained in Portpatrick, did the other vessel make her passage from the other side?—I should say not, because they depended on the arrival of the packet from Portpatrick to bring the mails back; I have known it sent in those cases by a sailing vessel, but had there been a third steam vessel to have remained on the Irish side, so as not to be dependent on the arrival of the packet from Portpatrick, it might have been avoided; it came quite as quick by a sailing vessel, when the steamer was detained in Portpatrick by stress of weather, because she had a favourable wind to return.

3549. Have you any recollection what the state of the weather was during those five days?—I should consider it was owing to strong south-west or westerly gales, which prevented the packet leaving the harbour of Portpatrick, and I should say a deficiency of power in the vessels employed, or otherwise they might have been enabled, two or three out of those five days, to have made their passage.

3550. Was the sea at the entrance of the harbour so great that you were fearful of getting under weigh?—Yes, fearful of attempting to steam out.

3551. If you could have got out of Portpatrick, could you have got into Donaghadee?—Yes; if we could have got across, there would have been no difficulty in going into Donaghadee with south-west winds, it being a weather shore, and always smooth water.

3552. On the days you were detained at Portpatrick, could a vessel leaving Donaghadee have got into the harbour at Portpatrick?—I think it doubtful, supposing it was very heavy weather, unless they suited the time of tide, which is about an hour before low water till about an hour after, as we generally found that the smoothest time of the tide.

3553. What water is there in the harbour?—There is plenty of water at the entrance, but only six or seven feet in the basin; vessels used to ground upon the bar going into the basin.

3554. What was the draught of the vessels?—From six and a half to seven feet.

3555. Was it only with a south-west wind you were afraid of going out of the harbour?—From south-west to west-north-west, although when the wind got from west and the northward of west there was not so much sea as at south-west; the sea having less fetch, it was not so heavy, and consequently a vessel with proper power might steam out.

3556. That is speaking of the vessels you then commanded; if they had been of 100 horses' power, would they have been able to steam out at all times?—Certainly, they would have steamed out with greater ease and safety.

3557. Should you have thought it incumbent on you, with a vessel of that class, to undertake the voyage?—I think such a vessel might have ventured almost every day in the year, when it was possible to keep the sea; I should think there was scarcely a day they would have missed.

3558. Do you think the harbour of Portpatrick is capable of any improvement?—Yes, I think the present accommodation for packets is rather small; I should recommend the basin to be extended a little inland, to make room for the vessels to range about.

3559. What is the length of the berth?—The whole length of the berth is about 200 feet, and the width 120 feet.

3560. Have you a sketch of the harbour?—I have a rough sketch which I took myself at that time (*produces the same*). If it is wished to have vessels of a larger size, it would be necessary to extend the basin inland, towards what is called the Stone-field.

3561. Are

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3561. Are fogs very prevalent there?—No; and even in cases of fog, the coast is favourable to make, being a bold shore.

3562. You think it would be possible to make the harbour efficient for Post-office purposes?—Yes, I think it is possible to make it available for all the purposes required.

3563. Would that cause any considerable outlay?—I am not competent to give an opinion as to the expense of extending the harbour.

3564. Is it all rock?—Yes.

3565. In that particular part where there is only about five feet at low water, could it be deepened?—Yes; but it cannot be scooped; it must be picked out by diving bells or blasting.

3566. There is an advantage in its being rock, because when once removed it will not fill up again?—Yes; we never find it fill up, as the coast is iron-bound, and there is nothing to wash in along the shore to form a bar.

3567. Then if the harbour were once made clear, would it require any further expense to keep it up?—I do not think it would; I do not believe it has any tendency to fill up.

3568. Supposing there to be three vessels of 100 horses' power each, and two to be detained at Portpatrick, would there be room for a third vessel arriving from Donaghadee to come in?—In that case, in the present state of the harbour, the third might find shelter in the old harbour for a tide, where she would ground at low water.

3569. Would there be room for larger vessels than those at present employed?—I think larger vessels would not find accommodation; but you might put more power into vessels of the same dimensions; those at present employed are much under power, in proportion to their size.

3570. You consider those at present employed much under power?—Yes, for their size, considering the recent improvements in steam navigation.

3571. What is the draught of those vessels?—About six and a half feet.

3572. What is the horse power?—Fifty horses.

3573. Do you know the length of the vessels?—I think they are about 94 feet.

3574. What is the breadth a-beam?—Fifteen feet two inches.

3575. Is that outside the paddle-boxes?—No; 28 or 29 feet outside the paddle-boxes.

3576. You think with the same tonnage you might have a greater horse-power, so as to adhere to vessels of the same dimensions?—Yes, you might have vessels built upon an improved construction to carry 100 horses' power, which would not take up much more room, and would be more efficient for the service.

3577. Flat-bottomed?—Yes, to draw not more than six feet water.

3578. Supposing you had such a class of vessels as you describe, would the communication be more regular?—Certainly, more certain in bad weather; and I should say the voyage would be performed in half the time under such circumstances. On such occasions, when the present boats would be six hours crossing, a vessel of 100 horses' power would do it in three or four.

3579. Is there not occasionally an hour or two's lull in certain states of the tide?—We find that when it has been blowing hard from the south-west, accompanied by rain, the wind generally flies in to the westward, in which case there is invariably a lull for a few hours.

3580. A great advantage to be derived from that lull would be, in powerful steamers, that they could run over while it lasted?—Yes, if the vessels were kept ready, they would be across in two or three hours.

3581. Do you know at all the average duration of the passages?—I have got a statement here of the average passages for the last year, taken from the Admiralty accounts; the average of the last year is stated to be 2 hours 25 minutes in summer, and 2 hours 45 minutes in winter.

3582. Then if you had larger vessels, what do you think the average would be?—I think the difference would not be more than the 25 minutes upon the average; for with vessels of double the power, the speed would not increase in proportion, although in bad weather the saving of time would be much more. I should say the average passage would not be more than two hours, the distance being only 21 miles. I think I have done it in the old boats in little more than two hours, under the most favourable circumstances.

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3583. Have you any knowledge of Loch Ryan?—Only from having been occasionally in and about it; having been principally confined to Portpatrick, I had no opportunity of surveying Loch Ryan.

3584. Have you sailed about it?—Yes.

3585. It is, generally speaking, a good open roadstead?—Yes, it is a very safe entrance; there is a shoal called the Scears on the west side of the loch, but there is a very good channel to the eastward as far as Stranraer.

3586. Have you any knowledge of Loch Larne?—I have been in once or twice, but not to make any survey of it.

3587. You know it practically?—Only from having passed it at different times; we used frequently to fetch in near there, and steam along the Irish shore in going from Portpatrick, with heavy west-south-west gales, in order to gain smooth water. That was entirely owing to the want of power, and would not be required with vessels of greater power.

3588. Do you think the two ports of Loch Ryan and Loch Larne could be as easily made as the two ports of Portpatrick and Donaghadee?—I think they could be made as easily, there being only a difference of distance.

3589. With reference to safety and ease in getting in?—Yes, if made convenient, they would be just as safe as to getting in, as far as I can judge. There is a reef of rocks running out near the entrance of Larne, which we always used to consider very dangerous to approach in thick weather, called the Maidens.

3590. Sir *Robert Ferguson.*] Are you aware that lights have been placed upon the Maidens lately?—Yes; and no doubt they are much safer since the lights have been erected. When I was there, there were no lights.

3591. You think the harbours of Loch Larne and Loch Ryan would be as easily entered throughout the year as Portpatrick and Donaghadee?—I should think so.

3592. Lord *Newry.*] Upon those days when there would be a difficulty in going out of Portpatrick, do you think there would be an equal difficulty in going out of Loch Ryan?—No, not with south-west winds; but you would have the same difficulty to contend with in the Channel; with south-west winds you have smooth water in Loch Ryan.

3593. Is the set of the tides or currents the same after you pass Corsil Point as at Portpatrick?—Yes, much the same when you get into the Channel tide, after you get outside of Corsil Point.

3594. Have you any idea what the average passage would be between Loch Ryan and Loch Larne?—I should think with boats of equal power it would be an hour and a half more on the average; that is, if you could get from Portpatrick to Donaghadee in two hours, it would take you three hours and a half from Loch Ryan to Loch Larne; there would be a little time lost in going up the lochs on each side which would make the distance about 35 miles.

3595. Is there any wind which would make a heavy sea in Loch Ryan, which would prevent a vessel getting in and out?—I have seen gales from the north and north-west very violent in Loch Ryan, and which would give vessels nearly the same difficulty to contend with in getting out as they have now with south-west winds at Portpatrick.

3596. What wind affects Donaghadee most?—Easterly winds, and from about north-east to south-east, but they are not prevalent winds at all.

3597. Would a heavy gale from the east keep you in the harbour of Donaghadee?—I think not; there is not so much fetch with an easterly wind at Donaghadee, owing to the shelter from the Scotch shore, and when you get half channel across you would get into smooth water, under the lee of the high land of Scotland.

3598. Would an easterly gale, that might keep you at Donaghadee, have the same effect upon a vessel at Loch Larne?—Yes, even greater; because it would have more fetch, and consequently the sea would be heavier there.

3599. Is there any harbour now at Loch Larne?—There is little or no harbour there at present.

3600. Is it a place where a harbour could be easily made?—Yes, a harbour might be constructed there.

3601. As efficient a one as at Donaghadee?—Quite so, I should say, there being more shelter inside the Loch; a harbour could be easily made at Loch Larne, but of course it would be attended with expense.

3602. The

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3602. The entrance is perfectly free?—Yes; I do not know how far a stone pier there would not make it liable to fill up; there is little or no current inside the Loch, and I should think it would be liable to fill up.

3603. Is there any stream out of the harbour to wash it out?—I do not think there is any stream there.

3604. Is there any stream at Donaghadee?—The north pier not being joined to the main land, causes the tide to wash round, and in a great measure prevents its filling up.

3605. Is the harbour at Donaghadee finished?—I believe it is nearly or quite finished.

3606. Is it likely to incur further expense in keeping it up?—Not very likely; I think a small expense will keep it up.

3607. Is there plenty of room?—There is not much room, it is a small harbour; there is enough for all the purposes of a packet station.

3608. Is it large enough for the purpose of the Post-office communication?—Yes, it is large enough for vessels of almost any size or power.

3609. Would there be plenty of berthage for three vessels?—Yes, I should think so; in fact, there would never be more than two.

3610. Have you any knowledge of the dimensions of the harbour?—No; I have not got the dimensions, but I should say there would be quite room enough for two or three vessels.

3611. Do you think it possible to make the harbour of Portpatrick equally capable of holding three vessels?—Yes, I think it is quite possible.

3612. *Chairman.*] It would be very expensive, would it not?—I do not know what the expense would be.

3613. Lord *Newry.*] May not the expense be calculated by what has been done, the work being of the same character?—Yes.

3614. Do you think the prevailing winds at Portpatrick and Donaghadee would have the same effect on vessels making the passage from Loch Ryan to Loch Larne?—I should say the course is very nearly the same, with the difference of distance only, which, with a vessel going only three or four knots an hour, in bad weather, would make a difference in time of two or three hours occasionally, but upon the average, I should think an hour and half.

3615. I think you mentioned that, with the wind at east, there is a good deal of shelter to be gained by coming under the Scotch coast?—Yes, much more than there would be further to the northward, because the distance is shorter, and the land to the northward falls in after you get past the Corsil Point, and that makes the sea much heavier on the Antrim shore with an east wind, than on the Down shore.

3616. Do you know the position of the bay of Loch Ryan?—It is nearly north and south, and consequently the east and west winds blow right across it.

3617. If you were making a passage from Loch Ryan to Loch Larne, with an easterly wind, how would the wind affect you in going past the Corsil Point; would it come up the bay?—No, it would not come up the bay, it blows right across it; it is smooth water in Loch Ryan, with an easterly wind; it is only with a northerly wind its entrance is affected.

3618. Have you any suggestions to make as to improving the harbour of Portpatrick?—I should suggest, that if any improvements are carried on at Portpatrick, the rock called the Dorne should either be taken away, or faced with freestone, so as to form a kind of jetty, and prevent the sea from rolling as it does now into the basin at high water.

3619. *Chairman.*] You spoke of missing the mails on the Irish side; what margin is there allowed after the arrival of the packet, for the departure of the mails from Donaghadee?—I do not know whether there has been any alteration made since I left; but at that time they were allowed nearly six hours from the time the packet left Portpatrick, to sort the mails at Donaghadee, and to get to Belfast in time for the Derry mail. Our average arrival at that time used to be about nine o'clock; I think they arrive at Donaghadee now before nine.

3620. The average passage being three hours?—Yes.

3621. That is leaving a margin of three hours?—Yes.

3622. What is the margin at Portpatrick?—We had about two hours; the Glasgow mail used to leave at five o'clock, and the Carlisle mail at seven.

3623. Do you think that harbour could, by any possibility, be made to hold

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large and powerful steamers?—Not large vessels, I should say; you have not space; you must confine yourself to vessels of nearly the same dimensions.

3624. Is the harbour of Donaghadee always easy to enter?—Yes, it is; it is much easier to enter than Portpatrick.

3625. Is it easy to enter with the wind setting in shore?—Yes, with any wind.

3626. Were you ever prevented from entering by the wind setting in shore?—No; I never went to leeward, or was driven away from the entrance, the whole time I was upon the station; I always went to the Irish shore with a great deal of confidence in bad weather.

3627. Lord *Newry.*] Supposing you left Donaghadee with a fair wind, and were to miss Portpatrick, what other place could you make?—The only place would be Loch Ryan, with a south-westerly wind, and with a northerly wind you would attempt Port Nessock, which is a small harbour eight or ten miles to the southward.

3628. Is Port Nessock capable of receiving a vessel at any state of the tide?—No.

3629. *Chairman.*] Can you get into Portpatrick and Donaghadee at all states of the tide?—Yes, at Donaghadee, and also into the entrance of Portpatrick; but you are obliged to wait for water to get into the berth, which is generally at about an hour's flood.

3630. Mr. *Grogan.*] Did it ever occur, when you were upon that station, that there would be greater facility in making Belfast Loch than Donaghadee?—There was no place to land at in Belfast Loch at that time, unless it was at Bangor, the entrance to Belfast being dry for about four miles below the town.

3631. Are you not aware that a cut has been made from the town to the loch?—They had commenced a work of that kind before I left the station, but I am not aware how far they have proceeded with it; if the cut were completed, there would not be much difficulty after you got into the loch, because you would have smooth water; but the loch is more subject to fogs than places on the coast.

3632. Lord *Newry.*] You said just now there was no difficulty in making Donaghadee at any time?—No; because we had the Copeland Islands on one side, which afforded good shelter with northerly winds, and with easterly winds the coast of Scotland; and those from the southward and westward are smooth-water winds.

3633. Mr. *Grogan.*] It did not occur to you at any time that it would be advisable to run for Belfast?—No; it never occurred to me that I was under the necessity of running to Belfast, or any other port, the whole time I was on the station.

3634. Sir *Robert Ferguson.*] I think you stated you were on the station from 1825 to 1831; do you know anything of the present state of the harbours and the vessels, or what alterations have been made since that time?—No, I cannot speak positively as to the present state of the harbours, although they must be greatly improved, but the vessels are the same I left there.

3635. You have stated if more powerful vessels were put on between Portpatrick and Donaghadee, the passage might be made in two hours?—Yes.

3636. In which case the average passage from Loch Ryan to Loch Larne would be three and a half hours?—Yes.

3637. Would there not be a considerable quantity of smooth water from Loch Ryan to Loch Larne, taking in the lochs?—Yes, there would be a few miles of smooth water on each side.

3638. Would there be any difficulty in getting out of those lochs at any state of the wind or tide?—No, there would be no difficulty in getting out of the lochs.

3639. Was there not a difficulty in getting out of Portpatrick with certain winds?—There was in south-westerly gales at that time, but that would be in a great measure remedied by getting vessels of greater power.

3640. What should you say was the proportion of south-west winds compared with others?—South-west winds and westerly winds are much more prevalent; I should say three to one.

3641. You mentioned that in Loch Larne there is no place for a steamer to land at?—There is no wet harbour, where they could lie afloat alongside at all times of the tide.

3642. Are

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3642. Are you aware it has been stated in evidence here that a steam vessel from Coleraine, leaving Port Rush at a fixed hour, has every time of its passage stopped at Larne, and come up to the pier there?—I did not know that they had a pier there; that must have been since I was there.

3643. You mentioned that among the difficulties of making Loch Larne was the Maiden Rocks; do they lie in the course from Loch Ryan to Loch Larne?—Yes, they are pretty much in the course.

3644. But they are well lighted now?—Yes, there are two lighthouses which make them less dangerous.

3645. You have spoken of the time of departure of the Glasgow mail and the Derry mail; can you give me any idea how often the mails brought by your packets were too late for either of them?—No, I cannot say how often; but not very often, I should imagine.

3646. You have spoken of the expense of these new works in the harbour of Portpatrick, do you know, or can you give any idea, what the expense has already been?—I believe the original estimate was somewhere about 120,000 *l.*

Mr. *George Bidder*, called in; and Examined.

Mr. *G. Bidder.*

3647. Mr. *Stanley.*] YOU are a Civil Engineer?—Yes.

3648. Have you had any experience in the formation of railways?—I have.

3649. Have you turned your attention to a railway from Chester to Bangor?—I have.

3650. Are there considerable difficulties in the way?—No, very few; the country is remarkably favourable.

3651. Can you state at all the cost of constructing a railway from Chester to Bangor?—The estimate I formed was for a railway from Chester to Holyhead; I took the entire line. Of course there can be no object in making a railway to Bangor *per se*; there would be no object gained by it, and therefore my attention was directed to an integral line of railway to Holyhead. The estimate to Holyhead was 1,500,000 *l.* with the railway establishment, carriages and workshops complete; and I beg to state I am well acquainted with parties who are quite ready to undertake it, and finish it for that sum.

3652. Mr. *Grogan.*] How do you propose to cross the Menai Straits?—By the existing bridge.

3653. Have you any doubt as to its stability?—There can be no doubt of its sufficiency for conveying railway carriages across, if Mr. Stephenson's plan be adopted, namely, to have a stationary engine at either end of the bridge, with an endless rope, so that the trains coming in either direction would be detached from the locomotive engine, and the carriages separated and then attached to the rope by a messenger or grip, at intervals of 100 or 150 feet, whichever may appear most desirable, in the same way as the carriages on the London and Blackwall Railway are attached to the rope, then drawn across by the stationary engines and attached to the locomotive engine on the opposite side, and thus forwarded. The bridge is perfectly capable of being crossed in this manner, because the load imposed upon it would not be more than that for which it has been calculated and used, viz., a loaded mail-coach, with four horses; with this difference, however, that the railway carriages will occasion much less vibration than what would be occasioned by the horses' feet.

3654. That answer applies to one class of objections, that is, the stability of the bridge for bearing weight: have you considered the difficulty which would arise from railway carriages travelling upon a railway which is liable to be disarranged by the oscillations of the bridge in a gale of wind?—I think there can be no danger from the latter cause, because the railway carriage proceeding at a velocity of eight or ten miles an hour, which would be the maximum in this case, is capable of passing over a road in much worse order than I can ever consider it possible for this bridge to be, in a gale of wind with perfect safety; and if the worst come to the worst, it is only necessary to moderate the velocity of the carriages to meet the exigencies of the case.

3655. You conceive, then, that a railway train passing over the bridge in a gale of wind, would not be liable to get off the rails?—Certainly not, if it is conveyed in the way I have stated.

3656. Does your plan of an endless rope extend to comprehend the necessity

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of stopping up half the bridge?—Certainly not; there is no necessity for interrupting the ordinary use of the bridge.

3657. Then you would leave the bridge open for the ordinary traffic as it is at this moment?—Precisely.

3658. Mr. *Stanley.*] What would be the delay in crossing the bridge by the plan you propose?—Ten minutes.

3659. What do you consider would be the advantages to the country, if you were able to carry this plan into effect?—By returns made to the House of Commons for the year 1840, it appears that the average voyage between Liverpool and Kingstown has occupied 12¼ hours, and from Holyhead to Kingstown, the average passage has occupied 6⅔ hours; but it should be observed, that the vessels employed on the latter station are of a very inferior class to those on the former, being much smaller vessels and of much less power; they are consequently exposed to a greater disproportionate interruption from heavy contrary winds; and it is my opinion, that if the same class of vessels be employed between Kingstown and Holyhead as between Kingstown and Liverpool, the average passage would be reduced to five hours, in which case, adding 10½ hours for the time between London and Holyhead, and allowing half an hour for contingencies on the railway, and one hour further as a margin for the arrival of the packets, the whole time of the passage from London to Kingstown would be 17 hours, whereas by way of Liverpool, the time occupied at present is 23 hours; affording a saving of six hours in time, besides the avoidance of the greater irregularity necessarily arising from the longer sea passage by Liverpool, together with the difficulty and uncertainty of entering the Mersey at low-water seasons.

3660. *Chairman.*] Does that answer apply equally to Holyhead, and any other port in North Wales, equally accessible by railway?—Yes, to any other port equally favourably situated, geographically.

3661. Mr. *Stanley.*] Do you think this would be a remunerating line to the projectors?—It would not be a remunerating line from its own intrinsic traffic, that is to say, the whole of the traffic from London to Ireland, if concentrated here together, with all its local traffic, would afford an inadequate remuneration for the outlay requisite to complete this portion of railway.

3662. Considering the importance of such a railway to the public, do you think that Government should afford any assistance in carrying it into effect?—I think so; especially as this assistance might be rendered without causing any absolute loss to the public; because I find, by reference to the returns made to the House of Commons, that the expenditure over and above the receipts of the three Post-office stations at Milford, Holyhead, and Liverpool, is, in round numbers, 54,000 *l.*, to which, if you add 9,750 *l.*, or say 10,000 *l.*, as compensation for carrying the day mail from Liverpool to Kingstown, the annual loss upon the present arrangements would be, in round numbers, 64,000 *l.* per annum; to which, however, should be added interest upon the capital laid out in the boats and depreciation fund, as to which I am unable to speak with certainty, but I cannot conceive it could amount to less than 30,000 *l.* per annum; thus making the total expense to Government, of conveying the mails from England to Ireland by these three stations, from 90,000 *l.* to 100,000 *l.* per annum.

3663. Mr. *Morgan.*] If I understand you rightly, your suggestion amounts to this, that the South Wales passage is to be sacrificed for the sake of a passage through North Wales?—Yes; because letters would be conveyed to Waterford by Holyhead and Dublin quicker than by Milford.

3664. A letter from Swansea to Waterford could not?—No; a letter from Swansea to Waterford could not. But the question is, whether it is not of less consequence that time should be sacrificed in the case of letters from Swansea to the South of Ireland, than from Liverpool and Manchester.

3665. Are you aware that Government has already advanced a large sum of money for the improvement of the communication by Holyhead?—Yes, certainly.

3666. Has Government advanced anything for the improvement of the line through South Wales?—Not that I am aware of.

3667. Mr. *Stanley.*] If I understand you, you mean to say that letters from London would be conveyed through Dublin to Waterford quicker than by the Milford passage?—Certainly.

3668. Would the same observation apply to letters from Liverpool and Manchester to Dublin ?—Certainly.

3669. What time would you give to letters between Liverpool and Dublin by that route ?—Ten hours.

3670. What description of railway would you propose ?—I propose a single line of railway, with an electrical telegraph; and I do so because the traffic on that line would be exceeding simple; it would be confined to two trains each way each day, the morning and evening mail. The local traffic is so small as not to require an intermediate train; at all events, a single intermediate train between Chester and Conway would satisfy all the demands of the local traffic; and therefore a single line of railway, by the assistance of the electrical telegraph, would, in my opinion, amply accommodate and provide for the limited number of trains which the traffic would require; indeed my opinion is, that a single line of railway, with an electrical telegraph, is a more efficient line than a double line of railway without it.

3671. Mr. *Grogan.*] You say your estimate for that line is a million and a half; is that for a single line of railway ?—Yes, with the establishment complete, engines, carriages, and workshops.

3672. Mr. *Stanley.*] Will you state your views for raising the estimated capital ?—I think, as I stated before, that Government should pay to the railway company, for the conveyance of the mails from Chester to Dublin, a sum equal to the present loss upon the three existing stations of Liverpool, Holyhead, and Milford; and I am well acquainted with parties who are willing to undertake to make the proposed line of railway upon those terms.

3673. Mr. *Grogan.*] Can you specify any particular sum ?—I should say 75,000*l.* per annum for the conveyance of the mails from Chester, and delivering them at Kingstown.

3674. Including the vessels ?—Yes; but which I propose should be Government vessels, commanded by Government officers, and entirely under Government regulations; but that their expenses should be defrayed by the railway company, they having the advantage of the fares.

3675. Mr. *Stanley.*] You are acquainted with parties who are willing to undertake to do it upon those terms ?—Yes.

3676. Mr. *Grogan.*] Do you contemplate that the company should furnish the boats ?—They would furnish the boats if required.

3677. Your present plan is, that the company should work these boats, but that the Government should furnish them ?—Yes, and to have the entire regulation of them.

3678. *Chairman.*] And you contemplate the total abandonment of all communication through South Wales, and the total abandonment of all communication from Liverpool to Dublin ?—Yes, so far as the mail is concerned.

3679. Mr. *Grogan.*] Do I understand you correctly, that you suggest removing the double mail from Liverpool ?—Yes.

3680. You are aware there are two steam packets daily from Liverpool and Kingstown, morning and evening; does your present proposition contemplate removing both of them, or only one ?—Both of them.

3681. Mr. *Stanley.*] What would be the speed upon the railway ?—The speed which I contemplate would be only 26 miles an hour, stoppages included; but I believe 30 miles an hour could be realised with perfect safety, because that would only be a speed which is daily practised on many railways in this country.

3682. Can you state the minimum to which the communication would be reduced between London and Kingstown ?—Yes; I consider it is quite possible to reduce the time of conveying the mail from London to Kingstown to 15 hours; viz. nine hours by railway, five hours by steam-boat, with one hour margin.

3683. And that with perfect safety ?—Yes; in fact, it would not require a greater speed than is daily attained.

3684. *Chairman.*] You said a letter could get to Waterford, by way of Holyhead, quicker than it could go by Milford ?—Yes.

3685. You have heard of a place called Brean Down, or Weston-super-Mare, from which the passage to Waterford is said to be capable of being reduced to 18 hours; in that case would your answer apply ?—No; in that case, assuming that the passage can be made in 18 hours, the time by way of Weston-super-

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Mare would be the same as by way of Holyhead, with this exception, that the greater sea passage would be subject to greater irregularities.

3686. How do you make out the 25 hours from London to Waterford, by way of Weston-super-Mare?—I take five hours and half by railway, half an hour contingencies, 18 hours the sea passage, and one hour margin.

3687. Mr. *Stanley.*] You have been asked as to this line as far as Bangor; are there any engineering difficulties in the way between Bangor and Holyhead?—No.

3688. Mr. *Grogan.*] You have spoken very favourably of Holyhead; has your attention been called to any other port on that coast with a view to this subject?—Yes; originally, before the Commissioners made their Report, my attention was called to a line of railway through Shropshire and Bala to Port-Dynllaen.

3689. Has your attention been called to any other line?—I have heard of a line that has been projected from Chester, through Bangor, to Port-Dynllaen.

3690. Have you examined the gradients, and country of that line, between Bangor and Port-Dynllaen?—Yes.

3691. Is the country favourable?—The country is favourable until you approach within six or seven miles of Port-Dynllaen, where it becomes more rugged; and it would require the railway to terminate at Port-Dynllaen, at a considerable elevation above the sea, which would be very objectionable.

3692. Did you survey the line from Chester to Holyhead?—Yes.

3693. Does the level of that railway adapt itself to the level of the Menai Bridge?—Yes.

3694. And does the railway come on to the level of the pier at Holyhead?—Yes.

3695. What would be the highest level of your proposed line?—The highest level is at the Menai Bridge.

3696. You have no higher level in any other part?—No.

3697. Mr. *Grogan.*] Am I to understand you that all the advantages with regard to Holyhead, as a Post-office station for the communication with London and Dublin, would equally apply to Port-Dynllaen?—I cannot judge of that, because I am not a competent judge of the relative advantages of these respective ports as packet stations; but Holyhead would be approached by a railway at a less cost and difficulty than Port-Dynllaen.

3698. Will you state what are the peculiar advantages of the electrical telegraph?—They are various; but I will allude to one or two which strike me at this moment; viz. in the event of an accident happening to the train on its way to join the railway at Crewe; for instance, supposing a train to be due at Crewe at 10 o'clock at night, and that the train should be interrupted in its course 40 miles from that place, and the engine disabled, the trains from Manchester and Liverpool would arrive there in due course at the above hour, and would there wait according to the regulations a quarter of an hour for the other train, when they would proceed on their journey in entire ignorance of what had happened to the latter. At a quarter past 10 in all probability a pilot engine would set out to investigate the cause of the delay, but as it would be unknown whether this delay was occasioned by the breaking down of the engine or by the train getting off the rails and getting on the other line, it would be necessary to travel, especially in winter and in dark nights, with great caution, and certainly at a speed not exceeding 20 miles an hour, so that the pilot engine would not arrive at the site of the accident until a quarter past 12 o'clock, and would then necessarily be upon the wrong line of rails, namely, the down instead of the up line, and it would have to go to a crossing to get to the other line of railway, so that with the time occupied with these evolutions, it could not be attached to the train before half-past 12 o'clock, and would not then arrive at Crewe till two o'clock in the morning, thus occasioning a loss of time equal to four hours; and this, be it observed, is with a double line of railway. On the other hand, let us suppose there is a single line of railway only, with an electrical telegraph, and a train broke down at the same place at 12 o'clock; in less than 10 minutes from this time information of the stoppage would be conveyed along the whole line to Crewe, and the pilot engine would immediately set off to render assistance, but previously to its starting, information also of its movements would be communicated throughout the whole line, and thus every

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every preparation would be made to enable it to proceed on uninterruptedly, and thus it would be enabled to travel at a high speed, so that it would reach the disabled train at half-past nine or a quarter to 10 at the latest; it would then take the train in tow and arrive at Crewe at about half-past 11 o'clock instead of at two o'clock as in the other case; besides which the detention of a quarter of an hour would be saved to the trains from Manchester and Liverpool, as when they arrived at Crewe they would be made acquainted with what had happened to the train, and their stopping there being unnecessary, they would be enabled through their journey to London to give information as to the time the other train might be expected, and thus also pave the way for expediting it throughout the whole journey.

3699. Would it have peculiar advantages with respect to a packet station?—Unquestionably, because by means of the telegraph the parties stationed at the look-out at the port would judge a long time before a vessel arrived as to whether there would be any delay in starting the train; they would judge not only of the delay, but of its extent, and thus they would send information of the same throughout the whole line, and enable, as before stated, preparation to be made for expediting any train that might be detained by adverse winds opposing the passage of the steamer, without interrupting any other communication of the traffic.

3700. Mr. *Grogan.*] Was Mr. Stephenson's original plan for a single line of railway?—No; I think the original was for two lines.

3701. But did not that estimate include the outlay for Holyhead Harbour?—Yes; I do not know to what extent; but I apprehend that original estimate did not include the plant, and the carriages, and other estimates. It is usual in these cases, in applying to Parliament, to make the subscribed capital cover the estimate for constructing the line, the parties having power to borrow one-third more to cover the expense of establishing the plan, which latter expense I have included in the estimate of a million and a half.

3702. Mr. *Stanley.*] Then you would propose only a single line of railway?—Yes; but having only two trains each way daily, and as only two of those can meet, I propose, when it should be found by experience the best time of starting of the trains, and the point at which they usually meet, that at that place a double line of railway should be established, and the line would be worked as follows, viz.: as soon as the trains start from the opposite extremities of the line, information would be sent throughout the whole line in each direction, to say that the trains had started, so that at every station along the line parties would be prepared to expect them; and again, as each train passed each station, information of that event would also be transmitted throughout the line, so that for every instant of the progress of the trains, exact information of their position would be known to the parties interested, so that at last, when they came to the portion of railway where they would necessarily meet the train which arrived at one end of that first, say station, it would pass on, and information would be sent to station B. immediately, so that the train coming in the opposite direction, would there be detained until the other train had passed, so that the possibility of the trains meeting would be altogether precluded.

3703. Is the electrical telegraph liable to get out of order?—Certainly not; and I would give as an instance, the electrical telegraph on the London and Blackwall Railway, on which it has been used for nearly two years uninterruptedly, and where the trains are running in each direction every quarter of an hour throughout the day, and where the result of a failure of the telegraph would be attended with the most fearful and fatal collision; because, between London and Blackwall there are five or six stations; and as this railway is worked by means of ropes, the carriages at those stations are all attached to the rope at once while at rest, so that when the engines commence pulling the rope the whole of them are set in motion simultaneously, and thus if by chance any one of these carriages should not have been attached to the rope, or should become suddenly detached, the succeeding carriage in dark foggy nights must necessarily run into the one which has thus been detained, and thus occasion the collision alluded to. Now, in order to avoid this the telegraph in operation on this railway conveys the information to the engines at the opposite extremities of the line, giving information that everything is ready for their starting, or the contrary, as the case may be, and not only so, but as it occasionally happens, the carriages by some cause or other become detached from

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from the rope in the progress of their journey from one end of the line to the other, in which case the conductor of the carriage gives notice to the nearest station by holding out his flag, when the telegraph is employed, and the whole rope, with the carriages attached to it, are immediately stopped, and all accidents thus prevented. Now this operation has been going on every quarter of an hour every day for nearly two years without any interruption, and the complexity and difficulty of applying this kind of railway to the simple nature of the traffic between Manchester and Holyhead admits of no comparison with that above stated.

Mr. *George Stephenson*, called in; and Examined.

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3704. Mr. *Stanley.*] YOU are a Civil Engineer?—I am.

3705. You have surveyed a line of railway between Chester and Holyhead?—Yes.

3706. It was stated in evidence the other day by Mr. Pim, (Q. 3405), that "he scarcely agreed with Mr. Cubitt as to the facility of crossing the Menai Bridge. I have a strong opinion that, considering the oscillations which I have seen in a gale of wind on that bridge, it would be exceedingly difficult to keep any line of rails in such order as it would be suitable to travel over." Have you any observation to make upon that?—I see it is here stated, "I happen to know that in order to obviate the difficulty of crossing the Menai Bridge, Mr. George Stephenson suggested the construction of another bridge across the Strait, for the purpose of railway communication, which I presume he would not have done, if he considered there were such facilities by the present bridge." I do not recollect ever to have made such a statement; I think it will not be found in my report. I did say it was possible to construct another bridge, but in the meantime I considered it quite unnecessary, as the present bridge was quite sufficient to carry on the traffic towards Holyhead. There is no difficulty whatever in crossing the bridge, by making use of an endless rope, in the way Mr. Bidder has stated; indeed it might be crossed without an endless rope, by horses, by detaching the carriages and taking them over singly, so far apart as to diminish the oscillation of the bridge. That is a much more safe mode of crossing a suspension bridge than with the ordinary mail-coach and horses. I have always given my opinion against the use of suspension bridges for railways, for if the locomotive engine were to pass with its whole train, the mass would be so great as to cause a very great oscillation of the bridge; but by taking the carriages singly, or so far apart, the bridge would be comparatively kept at ease, and there would be less oscillation than by the passing of a common coach with the horses trotting, or even walking, because the smoothness of the railway would in a great measure do away with the swinging motion.

3707. *Chairman.*] You propose, then, to separate the train?—Yes; the carriages should be so far apart as might be found by experience the most suitable, so as to give the least motion to the bridge. I am perfectly satisfied the carriages might be crossed in the way stated, with less injury to the bridge than is caused by the present mode of crossing.

3708. Lord *Newry.*] What do you suppose is the average weight of each carriage in a train?—A first-class carriage weighs five tons.

3709. What is the average weight of a coach and four horses?—About the same weight, I think. Cattle and horses, or even soldiers, crossing a chain bridge, cause more vibration, and do more injury to the bridge, than would be caused by a railway train crossing by machinery in the way I have stated.

3710. Mr. *Stanley.*] Are there any engineering difficulties in approaching the bridge?—Certainly not; I have laid out the line so that it might be either carried along the bridge or under one of the arches, by a branch, to a spot at which another bridge might be constructed hereafter, a little distance from the present, if necessary; but I consider that unnecessary at present.

3711. *Chairman.*] You think the bridge, as it at present exists, is perfectly capable of conveying railway trains in the way described?—Perfectly.

3712. What would be the delay in the transit of the railway carriages across in the way you propose?—I should think 10 minutes.

3713. Have you seen any occasion to alter the opinion stated in your report, of the practicability of this line, from your further experience of railways since that time?—None whatever; except, perhaps, that my statement as to the speed was below what might be attained, though I have always been against

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high speed on railways; and I may mention, that previous to the late accident, my son had taken some pains to warn the directors of the Paris and Versailles Railway, and to induce them to moderate their speed, informing them that if they did not, with a railway so crooked as theirs, and in the order in which it was, it must ultimately lead to some severe accident. You cannot ascertain the speed with perfect accuracy, but still the guard might measure it sufficiently near to prevent them exceeding 40 miles an hour.

3714. Mr. *Stanley*.] Then you still hold to the same opinion you have expressed and published as regards the facility of a line of railway from Chester to Holyhead?—I do; and I cannot imagine any other line that can be made at anything like so small a sum.

3715. *Chairman.*] Have you examined the other line which has been pointed out to Port Dynllaen?—Yes.

3716. Are there any engineering difficulties in approaching that?—I think there are; I am not bold enough to project such a line; indeed, I consider it is quite out of the question to attempt it.

3717. Are you speaking of the inland line by Bala, or from Chester to Bangor?—I have examined both lines; in fact, there is not a creek, or ravine, or valley, which I have not examined, with a view of getting the cheapest line possible.

3718. You think there are considerable engineering difficulties on the line from Bangor to Port-Dynllaen?—Yes; the country is so rough and uneven, that it would be out of the question to attempt to make it; and besides, when you get to Port-Dynllaen, it is above 80 feet above the level of the sea, and would require a stationary engine to work the goods from the ships to the high level.

3719. Mr. *Grogan.*] Have you ever examined the harbour of Holyhead?—I have.

3720. Is it capable of improvement?—I think it is.

3721. At no very extravagant sum?—I think so.

3722. So as to be made capable of holding a large class of steamers?—I think it is. I would refer to the late Mr. Rennie's Report, which I consider to be a very fair one. In his Report he recommended that an inner harbour should be constructed, so as to make the outlay as little as possible at that time; also stating, that should an outer harbour ever be wanted, it was quite capable of being constructed.

3723. You coincide with Mr. Rennie's Report?—I do.

George Macartney, Esq. called in; and Examined.

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3724. Sir *Robert Ferguson.*] WHERE do you generally reside?—At Lissanoure Castle, in the county of Antrim.

3725. Is there much complaint in the county of Antrim relative to the inconvenience arising from the present arrangements of the Post-office, owing to the mail from Belfast to Londonderry awaiting the arrival of the Scotch post?—There has been constant complaint for some years. Very great inconvenience has arisen to a very large portion of the county, and the grand jury of Antrim memorialized the Lords of the Treasury in 1841 to endeavour to accelerate, by some means or other, the Scotch arrangements, so as to give us our mail in proper time. About the year 1826, our county, at an expense of 70,000 *l.*, improved the mail-coach road from their city (as I may call it), Belfast, to Coleraine, which goes through the entire of the county of Antrim, I think, a distance of 43 miles. Previous to the alteration of the road in the district I live in, the town of Ballymoney received its letters at two o'clock in the day, which had left Dublin the night before; but immediately after, in consequence of some alteration in the Scotch mails, when the road was improved, the route of the mail was changed, and instead of coming direct to Belfast, as it did then, it was sent a circuitous route through Armagh, and brought into Ballymoney about six in the evening, in place of half-past two; in consequence of which, the inhabitants of the district, the magistrates, and all the residents, as well as the grand jury, memorialized the Post-office to have a better arrangement. We have always been put off by the Post-office, stating that the Scotch mail was of such importance to Derry, Sligo, and the north-

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west parts of Ireland, that our inconvenience was trivial compared with that of those towns. In consequence of having heard of the inquiry made by Government into the relative merits of Donaghadee and Larne, some of the gentlemen of the county of Antrim have taken up the question, and considered it. I myself know both places, from passing; I also know Loch Ryan, from having a yacht, and going in and out; and I with other gentlemen conceive that a great improvement and acceleration of the Scotch correspondence might be made by starting from Cairn Ryan, and landing at Larne. Our reason for entertaining this opinion is, that a railway is opened from Edinburgh to Glasgow, and from Glasgow to Ayr, consequently they could now bring the Scotch mails from that district of country two or three hours earlier to the port of embarkation than they did formerly; added to which, Cairn Ryan is as near for the embarkation of the southern mail as Portpatrick; the mail must go to Stranraer, and Cairn Ryan is rather nearer to Stranraer than Portpatrick. There can be no difficulty in starting any steam-packet of large power from Cairn Ryan; the only expense that would be necessary, would be to make landing-places for carriages; the roadstead is quite good to come off in open boats, but it would of course require for a steam-packet station a wooden jetty or pier to land carriages. On the other side, at Loch Larne, which I consider one of the safest lochs in Ireland, either for large or small vessels, there is at present a jetty at which vessels can lie alongside to land carriages or passengers. The distance of the entrance of Larne from the jetty is very small, and there is deep water close in shore; and if the weather become very severe, blowing in, the loch being composed of soft mud, a vessel could go higher up, and she would not receive any injury in consequence.

3726. Would there be any outlay required then?—None at Larne; and I should say, if I were proprietor of Cairn Ryan, I should be happy to lay out 1,000 *l.* or 2,000 *l.* to make a landing jetty for carriages, which is all that is necessary at Cairn Ryan; it is a loch very easy to go in and out of; even with a head wind, there is room enough to work a vessel in and out easily.

3727. *Chairman.*] Do you apprehend that can be done by private means?—I should think so; I believe the present proprietor of Cairn Ryan is the Earl of Stair, who appears, from some works that have been going on in his neighbourhood, to be a very enterprising and encouraging landlord.

3728. Are you acquainted with the harbours of Portpatrick and Donaghadee?—I have constantly crossed; and last year I went in bad weather in a sailing-vessel to Donaghadee.

3729. Are they good harbours?—Not being a professional man, of course I can only speak from my own observation; I look upon them to be as incomplete and as dangerous harbours for daily communication in bad weather across the Irish Channel as can be. They are shallow and very difficult of access. Upon the Scotch side particularly, in bad weather.

3730. Are they capable of improvement?—I do not think they could improve either harbour so as to bring in at low water the class of vessels I should like to see on all our stations, and I think any improvements that would not do so would not be worth laying out public money upon.

3731. Mr. *Grogan.*] Do you conceive the time that would be gained by the arrangement you have now suggested would obviate the inconvenience to Ballymena?—Certainly, accelerating the time of the arrival of the mail, great facility could be afforded without any increased expense to the Post-office. I think they could bring the mails from Carlisle and Edinburgh to the port of embarkation, say Loch Ryan, at six o'clock in the morning; and if they land at Larne, there is now a perfectly good road from Larne to Belfast, a distance of 16 Irish miles, and to the town of Ballymena there is a level mail-coach road which has been opened within six months, of about the same distance. I should contemplate having a mail-car from Larne to Ballymena, and a mail-coach to Belfast; the mail to Ballymena, which would carry the Scotch letters for all places to the north and north-west, including Derry, would start at the same time as the mail to Belfast. If that were done, the Derry mail could come back to the old hour of nine o'clock in the morning from Belfast, which would give us all the facility we want.

3732. Your suggestion would lead to a higher class of officers at Ballymena to sort the bags?—That would lead to a very small additional expense; Portpatrick

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patrick is a sorting place at present, and there is no occasion for one at Loch Larne, and Cairn Ryan might be substituted for Portpatrick.

3733. Is there any mail car at present?—No; I think I can show the Committee that were that regulation adopted, and our principal correspondence were to come through Belfast, there would be a saving of 300*l.* or 400*l.* a year from the alterations which would arise from it.

3734. If I understand you correctly, the correspondence is not to go by Belfast?—Previous to 1840 our correspondence came from Belfast, the mail leaving at nine o'clock in the morning; that gave us a communication to Dublin the same day, when I got my letters at Ballymoney at half-past two. About 1840 they changed it, in consequence of the great irregularity of the Scotch correspondence, the packet seldom or never arriving, except in the height of summer, previous to the despatch of the mail at nine o'clock. Derry, and other towns having great Scotch connexions, complained very much of this, very properly, and they threw over the intermediate towns for Derry and Sligo, and delayed the dispatch of the mail to two o'clock. In consequence of this they had to make some arrangements to satisfy us, and our southern and English correspondence is conveyed to Armagh in a mail-coach, and from thence by a mail-car to Ballymoney, through Garvagh and Moneymore.

3735. Sir *Robert Ferguson.*] What is the arrangement as regards Ballymoney now, which is some miles north of Ballymena; how does the mail come there?—The Dublin and English correspondence for Ballymoney is sent from Newry by mail-coach to Armagh, thence by mail-car through Moneymore and Garragh, arriving at Ballymoney about half-past five or six o'clock p. m.; the same correspondence for Ballymena comes by a mail-car from Armagh and Lurgan to Antrim, and is conveyed from Antrim by a mail-car, arriving about one in the day, at the same moment that the mail is despatched thence again; these three mail-cars there would be no necessity for by the arrangement we have pressed for.

3736. Can you give the Committee any idea of the cost to the Post-office of those arrangements?—As far as I can ascertain, the present expenditure for the conveyance of the mails, and the additional bonus to the mail contractors, in consequence of the mail from Belfast being obliged to travel by night instead of by day, thereby losing its passengers, is about 580*l.* per annum. If the arrangements we have pressed for were carried into effect, there would be a saving of from 300*l.* to 350*l.* per annum; calculating the mail-car from Larne at 50*l.* per annum, it would be about 300*l.*

3737. Mr. *Grogan.*] Then if I understand you correctly, the advantage to Ballymena and Ballymoney would be by accelerating the mail on the Scotch side, and by landing at Larne on the Irish side?—Yes; that would be one of them.

3738. Then, inasmuch as you would make Belfast your centre for the distribution of the Scotch letters, do you conceive it would be necessary to have a mail-car to Ballymena?—Certainly.

3739. Or that they should all go into Belfast, and be distributed from Belfast?—The loss of time by going to Belfast, would be three hours for the north-west mails, for the mail would arrive at Ballymena at precisely the same time it would arrive at Belfast, if despatched by mail-car from Larne to Ballymena; consequently you would have a delay of three hours at Ballymena and all places to the north-west; instead of which, by the expenditure of 50*l.* a year for a car, you would have them on the road 23 miles in advance of the mail.

3740. Would that proposed car to Ballymena fit in with the present coach which goes on to Sligo and the north?—Not with the present coach; it would fit with the proposed change. We should go back to our old hour of nine o'clock instead of two, to leave Belfast.

3741. That is to say, you would be seven or eight miles further on the road with the Scotch letters than by going through Belfast?—Twenty-three miles, as they go exactly the same distance; they would take the two legs of the triangle in that way. At present we have no despatch from Ballymoney, so as to arrive in Dublin the next morning. Our distance from Dublin is 100 miles, and a letter written as if this day does not arrive in Dublin till the day after to-morrow, which is owing to there being no morning despatch from Derry. We contemplate from the acceleration of the Scotch mail, a morning mail from Derry, as well as a morning despatch from Belfast, in place of

the

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the evening despatch at half-past six, as at present, from Derry; and at two o'clock from Belfast. This would do away with the necessity of four or five mail-cars. The Post-office have admitted the reasonableness of our demands, but they have always put it upon the great importance of the Scotch correspondence to the north-west, Derry and Sligo, and our intermediate district suffers in the meantime a very serious inconvenience.

Veneris, 10° *die Junii,* 1842.

Mr. Corry.
Lord Emlyn.
Sir Robert Ferguson.
Mr. Grogan.
Mr. Morgan.
Mr. Murphy.
Lord Newry.
Mr. Shaw.
Mr. Stanley.
Mr. Vivian.

LORD INGESTRE, IN THE CHAIR.

Mr. *Edward Hull,* called in; and Examined.

Mr. E. Hull.

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3742. *Chairman.*] WHAT situation do you hold?—Collector of Customs at Falmouth.

3743. Do you wish to make any statement to the Committee, with respect to the communication between Portpatrick and Donaghadee?—I will trouble the Committee with a few remarks which I have put together since my arrival in town, with reference to the communication between the West of Scotland and the North of Ireland. From the earliest traditions and records, Donaghadee and Portpatrick were the two points that had been adopted by the public for keeping open the communication between the North of Ireland and the West of Scotland, particularly after the intercourse had materially increased by the North of Ireland having been (as it was termed) planted by a number of settlers, principally from the shire of Galloway in Scotland. About the year 1766 to 1768, Wills, first Marquess of Downshire, being Postmaster-general of England, had a road made from Dumfries to Portpatrick, for the purpose of facilitating the communication and expediting the mails. Previous to this road being made, there was only a track across the moors, which, with very little interruption of a few small towns in the line, and occasional patches of firm ground, extended the whole distance from Dumfries to Portpatrick. At this time the letters were not daily conveyed between the two ports; the sum allowed by the Post-office for that purpose being so inadequate that the vessels did not sail with the mails unless there were passengers or carriages which would remunerate them for the trip. But in the year 1790, the late Marquess of Downshire, following up the steps taken by his Lordship's father, entered into a contract with the Postmaster-general for the conveyance of the mails between the two ports daily, which contract was executed by a company of which his lordship and the present marquess were the head, until the Post-office established steam-packets on the station, and took the conveyance of the mails between the two ports into their own hands. In the year 1802, attempts having been made to change the station from Portpatrick to Port Nessock, the late Marchioness of Downshire transmitted a memorial against that measure, signed by her ladyship, the Marquesses of Hertford and Donegal, Lords Moira, Stair, Galloway, and other landed proprietors and merchants of Belfast, Newry, and other places, to Mr. Addington, then Chancellor of the Exchequer, and on the 5th of April 1805 a copy was enclosed to Mr. Vansittart, at his request, the original having been mislaid; and a further memorial to the same effect, and also for improving the road from Carlisle to Portpatrick, the harbour of that place, and that at Donaghadee, signed by the Marchioness of Downshire, the Marquesses of Hertford and Donegal, the Earls of Stair and Gosford, the Countess of Clanwilliam, Lord Dufferin, and other landed proprietors, the grand juries of the counties of Down, Antrim, and Armagh, and the merchants of the principal towns in the North of Ireland, was transmitted to the Treasury by her ladyship in 1807. In 1809, a Committee of the House of Commons was appointed to inquire into the subject, and

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and a report made by the late Mr. Telford and Captain M'Rulie, R. N. (which recommended the packet station should be changed from Portpatrick and Donaghadee to Port Nessock and Bangor), was referred to them. Mr. Hull, of Donaghadee, who happened to be in town at that time, was called before this Committee, and required to submit his observations on said report. He accordingly drew up the statements which appear in the Reports of the Committee (ordered to be printed 15th of June 1809), and which rendered nugatory the reports of Messrs. Telford and M'Rulie. The whole appears in said Report of the Committee. Complaints having been made of the irregularity in the arrival of the mails from Portpatrick, owing to the insufficient state of the harbour, the Treasury, in 1814, directed the late Mr. Rennie to survey a large portion of the coast on each side of the Channel, with a view to the improvement of the communication. These surveys were completed in 1815, and were referred to the Trinity Board by the Treasury. This Board was required carefully to examine the same, and to report the port or place on each side most eligible for said purpose. They recommended Portpatrick and Donaghadee, but no steps were taken for the purpose, until early in 1818 the Marquess of Downshire transmitted a memorial signed by himself, a number of other noblemen, members of the House of Commons, and others interested in the subject, to Earl Talbot, the Lord Lieutenant of Ireland, which memorial was delivered by Mr. Hull to his Excellency, and forwarded by him to the Treasury, with a strong recommendation from the Irish Government in favour of its prayer. His Excellency's secretary (the present Lord Glenelg) having expressed a desire that Mr. Hull would go over to London and render such information and assistance in furtherance of the object as might be in his power, Mr. Hull proceeded accordingly, and, with the assistance and direction of the Marquess of Downshire, a deputation consisting of a number of noblemen and members of the House of Commons, without distinction of party, waited on Lord Liverpool to request that the Government would undertake the improvement of the harbour upon the plan of Mr. Rennie; but his lordship at that period declined to entertain the question, on the ground of expense. The Irish Government being very anxious on the subject, again expressed their desire that Mr. Hull should proceed to London in 1819 on the same business; and in consequence another deputation, headed by the Marquess of Downshire, of like importance to that of the preceding year, waited on Lord Liverpool, who, as before, referred the subject to the Trinity Board, and who again reported in favour of Donaghadee and Portpatrick, but his lordship then declared it was too late in the session to originate any legislative measure on the subject; but so much ground had been gained by three interviews and proceedings, that it was evident his lordship would shortly be induced or obliged to give way; and in consequence, early in 1820, Mr. Hull, at the instance of Lord Glenelg, prepared the necessary Bills to be laid before Parliament; and in the spring of 1820, a third deputation, at the head of which was as usual the Marquess of Downshire, waited upon Lord Liverpool, and after some difficulty on the part of his lordship, he was induced to acquiesce in the improvements of the harbours, and that the Bills prepared for that purpose should be laid before the House of Commons, which was done accordingly, and they all received the Royal Assent on the 24th July 1820; viz. 1 Geo. 4, c. 189, Act for imposing additional Postage on Letters passing between Donaghadee and Portpatrick; 1 Geo. 4, c. 112, Act for improving and completing the harbour of Portpatrick; 1 Geo. 4, c. 113, Ditto for Donaghadee Harbour. In consequence thereof the works of both harbours were carried on until the completion of that of Donaghadee in 1836, and at Portpatrick, with occasional interruptions, owing to the want of sufficient funds, up to the present time. In the interim, other attempts were made to remove the packets from this station. A Committee of the House of Lords in 1823, and of the Commons in 1830, were appointed to inquire into the subject; but both Committees confirmed the previous decision that had been repeatedly made; notwithstanding which, the Government in 1836 appointed a commission, of which Captain Beechey, R. N., was the head, to make further investigations into the comparative eligibility of other ports on each side of the Channel, for keeping up the communication between Scotland and Ireland, and who reported in favour of Lough Ryan and Lough Larne. It may reasonably be asked, what necessity existed for these latter investigations? Whether it arose from irregularity in the conveyance of the mails between

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Portpatrick and Donaghadee? or whether greater facility, regularity and despatch could be effected by removing the packets to another station? To these questions the answers afforded by the test of experience are these: In the first place, notwithstanding the defective state of Portpatrick harbour, and the notorious inefficiency of the steam-packets on that station, the mails have been conveyed, even under these disadvantages, with a regularity that has seldom been equalled, and never surpassed, even on those stations that have every advantage of harbour, and superior, powerful, and efficient steam-vessels. In proof of this, a reference to the Post-office returns will afford sufficient evidence; but it may, perhaps, be sufficient to state, that during the year 1841 there was only one mail over-due at Donaghadee from Portpatrick, and two at the latter port from the former, which was occasioned by a snow-storm in Ireland. If the object is regularity and despatch, which it is of the first importance to effect, the present station affords greater advantages than any other. Compare it with Lough Ryan and Lough Larne; the distance between those ports, according to Captain Beechey, is 34 miles, which he calculates powerful steam-vessels, in favourable weather, would make in three hours, and in unfavourable in five to six hours; from Portpatrick to Donaghadee, 21 miles, which proper vessels of sufficient power would, under favourable circumstances, effect in one and a half to two hours, and in unfavourable weather in three. The distance from Larne to Belfast is 27 statute miles, and from Donaghadee by the new road through Newtownards 16½ miles; thus the whole distance from Lough Ryan to Belfast is upwards of 60 miles, but only 37 or 38 to Portpatrick. From this statement, it is evident that the removal of the packets from their present station to that of Larne and Lough Ryan, so far from affording greater facilities, despatch, and celerity in the conveyance of the mails, would, on the contrary, in any circumstance, occasion much delay in the delivery of the Scotch letters at Belfast, and those to be forwarded to Dublin and the entire south and west of Ireland. It should also be borne in mind, that if the letters for Donaghadee (which at present are delivered soon after arrival), and those for the towns of Newtownards, Comber, Gregably, Ballywatter, Kirkcubbin, and Portaferry (which are forwarded at the same time with that of the mails which are delivered at Belfast), were landed at Larne, the effect would be that the letters from those towns must be sent at a distance from 35 to 50 or 60 miles out of the present direct line, to the great delay, manifest injustice, and injury of the inhabitants of those towns, and a very numerous, highly respectable, and intelligent intervening population. The present station has the advantage of the test of the experience of a period of lengthened duration. Adopted by the public at a time that their convenience, safety, and expedition, were their sole objects, and confirmed on the grounds of superior eligibility after repeated investigations by the Elder Brethren of the Trinity House, and other competent authorities; to make it perfect, it only requires that the harbour at Portpatrick should forthwith be completed, and that two steam-vessels adapted to the station, and possessing sufficient power of steam, should be placed thereon. This can be effected at a trifling expense, and if it is carried into execution, the communication will be carried on without interruption *de die in diem*, and with greater facility and expedition than at any other station.

3744. You put in that statement as embodying your views?—Yes.

3745. Will you have the goodness to state by what means you have become acquainted locally with those harbours?—I was resident at Donaghadee from my earliest infancy up to within a few years of the present time, and my attention was very early drawn to the improvement of the communication by the late Marquess of Downshire.

3746. In what state is the harbour of Donaghadee now?—It is complete. I was one of the commissioners for that harbour; I was also a commissioner for Portpatrick harbour. Donaghadee does not require any further improvement that I am aware of; there is fully sufficient accommodation for steam-vessels of any power or size that may be required for carrying on the communication between the two countries; and having resided at Donaghadee for several years after the harbour was complete, I witnessed several gales from the east and north-east, and I never knew any inconvenience to arise to the steam-packets or any other vessels which happened to be there.

3747. Can vessels get into Donaghadee at all times?—Yes, at all times; there

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there is 18 feet water at low-water spring tides at the entrance of the harbour, which gradually lessens to eight or nine feet at the extreme point next the land.

3748. Is the landing good?—The most perfect; the harbour itself I believe is one of the most perfect, architecturally, which this empire or any other can produce. It was planned by the late Mr. Rennie, and executed by Sir John Rennie, and is quite perfect. There are two places where there are stairs for landing, and also accommodation for landing carriages.

3749. Lord *Newry.*] Is there a sufficiently powerful crane?—Yes, there is a crane which can raise any weight which can possibly be required.

3750. Is there any crane at Portpatrick?—I believe there is a crane on the north pier for the landing and shipping of carriages.

3751. *Chairman.*] Are there the same facilities of entrance at Portpatrick as at Donagbadee?—The facility of entrance to Portpatrick is greater than at Donaghadee, inasmuch as the harbour is 30 feet wider, but there are improvements in progress in the internal part of the harbour of Portpatrick which ought to be completed for the good of the public service; but still they have been so far completed as to afford perfect accommodation to the present vessels since their establishment.

3752. Lord *Newry.*] How long is it since you were resident at Donagbadee?—From 10 to 11 years.

3753. Have you been there since?—Repeatedly; I was in the habit of visiting Donaghadee every year, after I left, for several years.

3754. Were you there for a sufficient length of time to examine the works?—Yes; in fact I never was there but that there was a meeting of commissioners called for the purpose of my being present at it on all occasions.

3755. *Chairman.*] Then you state in general terms that there has been no inconvenience felt by the public from the present packet station?—None whatever, nor by any vessels visiting the harbour.

3756. Mr. *Stanley.*] Are your statements with regard to the arrival of the packets made from official documents?—Yes, from the official documents I saw.

3757. Lord *Newry.*] Have you any knowledge what are the prevailing winds at Portpatrick?—The prevailing winds are, generally speaking, westerly or southwest in that part of the Channel.

3758. Are you in any way connected with either of the harbours now?—I am still a commissioner for Portpatrick harbour, but the Government have taken the harbour of Donaghadee into their own possession; it is now under the control of the Board of Works of Ireland. I am still so far connected with Portpatrick as being one of the commissioners for that harbour.

3759. Mr. *Stanley.*] I suppose you are one of the local commissioners?—The commissioners are local, because they are in the neighbourhood. Having removed to England, I am no longer able to act; but I remain a commissioner in the Act of Parliament for the improvement of the harbour.

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Sir *John Rennie.*

3760. *Chairman.*] WILL you put in your Report upon the Communication between the South-west of Scotland and the North of Ireland?—(*The same was put in and read. See* Appendix, No. 24.)

3761. Will you state to the Committee the public expenses which have been incurred at the two harbours of Portpatrick and Donagbadee, respectively?—The total sum expended at Donaghadee harbour from the commencement in 1819, when the Acts of Parliament were passed, has, in round numbers, been 145,000 *l.*, which was the original estimate within a few pounds. The accounts have been wound up exactly balancing; in fact, more has been done at Donagbadee than the original estimate contemplated, but the original estimate has not been exceeded.

3762. Mr. *Stanley.*] Is that harbour complete?—It is quite complete.

3763. And serves all the purposes for which it was originally formed?—I consider completely so. For Portpatrick, the total sum advanced by the Treasury has been, in round numbers, 154,000 *l.*; the original estimate being 121,000 *l.* The excess upon the original estimate has been occasioned by several extraordinary works having been ordered by the commissioners, not

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contemplated or not included in the original plan, and by the works being carried on at an extremely slow rate. Instead of both piers being carried on at once, they were carried on separately, and the money was advanced in such small sums and so late in the season, that it was impossible to do the works contemplated in time; it frequently happened that the works were left unfinished, and a storm came on, and of course the whole had to be done over again. If the money had been advanced and the works had gone on in the same way as at Donaghadee, they would no doubt have been finished within the estimate; but in consequence of this question having been opened so repeatedly after the works began, the Government did not feel themselves justified in advancing the money with that expedition which they otherwise would have done. I presume that has been the cause of the excess, and no other.

3764. Sir *Robert Ferguson.*] Is not the situation of Portpatrick more exposed than that of Donaghadee?—It is more exposed.

3765. Mr. *Stanley.*] Will you state how much, in your opinion, it will take to complete the works of Portpatrick?—I have stated in my report, 32,139*l.*; that is, to complete the south pier and the north pier, to remove some of the rocks from the interior of the harbour, to deepen the entrance of the inner harbour, and altogether to make it so far complete as I consider a station of that description ought to be.

3766. *Chairman.*] After that outlay has been incurred, do you conceive it will require any annual outlay to maintain it?—All these works do, to a certain extent, require some little outlay to keep them up; but I should consider in this case it would be comparatively trifling; certainly not more than in other places, if the work is well done.

3767. Are there any contemplated means of getting the money repaid; by tolls or anything of that sort?—There are tolls, and the money received from passengers, which I think is very small; but I should certainly say the money received from passengers would keep the works in repair.

3768. Besides keeping the vessels going?—Yes, I should conceive so, provided the traffic increases.

3769. Are there any means of paying off the principal?—As a packet station, I should say not.

3770. On either side?—I should doubt it. In Donaghadee there is more trade; in Portpatrick there is no trade, comparatively speaking. Donaghadee is a considerable resort of vessels; but still I should doubt whether there would be sufficient to pay off the principal in any reasonable time.

3771. Mr. *Stanley.*] When Portpatrick is so completed, will it be able to admit a larger class of packets?—It will be able to admit a larger and much more powerful class of packets than the present. Such packets, I am convinced, would make the passage in the time I have stated, that is, from an hour and a half to two hours upon ordinary occasions; and in not exceeding four hours upon extraordinary occasions, that is, storms.

3772. You mean the largest class of vessels that could be required for that station?—Yes. I wish the Committee to observe that, from the particular situation of that part of the country, the great communication of passengers between Ireland and Scotland is from Belfast to Glasgow, Greenock, and Ardrossan; so that, supposing you had a much more magnificent station, and much more powerful steamers, you would merely run them empty at a very great loss, and you would not gain any expedition by so doing.

3773. Lord *Newry.*] What sized steamers would you propose to put on that station?—I should say steamers of from 110 to 112 feet long, about 22 to 23 feet abeam, and drawing about 6 feet 6 inches water; and in a steamer of that kind you might very well put 110 horses' power.

3774. Mr. *Corry.*] Do you think the sum of 32,139*l.*, which you allow for deepening and enlarging the harbour of Portpatrick, would make it deep enough and wide enough for the purpose of those packets?—I do.

3775. Sir *R. Ferguson.*] And you calculate the expense of each of those packets at from 9,000*l.* to 10,000*l.*?—

3776. Mr. *Vivian.*] What is the annual expense of a steamer of 300 horses' power?—I think you cannot do better than take the actual cost of those between Liverpool and Kingstown, which has been returned by order of the House of Commons; I have taken my calculations from that return. I have stated

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stated in my report the actual cost, including coals, repairs, and the establishment ashore and afloat.

3777. Does that include all charges?—Yes, everything.

3778. What is the amount?—£. for each, and £. for both.

3779. That is for steamers of 300 horses' power?—Yes.

3780. What would be the annual expense of a steamer of 150 horses' power?—It would be rather more than one-half of one of 300 horses' power.

3781. *Chairman.*] Do you conceive that two steamers are enough to do all the duties that are required of them?—I believe one good steamer would almost do the duty between Portpatrick and Donaghadee, except on extraordinary occasions.

3782. Sir *R. Ferguson.*] Is it the case now, that the boat which sails in the morning to the Irish coast brings the mail back?—Yes; there are two packets, but I think they each run three days during the week, and then have three days' holiday.

3783. Mr. *Vivian.*] What description of steamer would you recommend for a passage of 90 miles, such as that from Milford to Waterford?—You should not have less than 300 horses' power for a heavy sea like that.

3784. How many steamers would it require to perform that passage daily for the conveyance of the mail?—You would require four; that is, to allow one time for repairs, cleaning the boilers, and putting the machinery in order; although three might keep the communication open if they were good ones.

3785. Sir *R. Ferguson.*] You have made some estimate with regard to the expense of making harbours at Loch Ryan and Loch Larne?—I have.

3786. Have you examined the two places?—I have been at Loch Ryan, where it is proposed to make the harbour, and I have also been at Loch Larne, and although I must examine them more minutely before I would pledge myself positively to an exact estimate, still I think I have seen enough of them to come within a small sum. The pier at Loch Larne, the plan of which was published by Captain Beechey, is 1,200 feet long; now there is about 12 feet, at low-water spring tides, at the head, and a very strong current indeed runs there; what the bottom is I do not know, but if the bottom is bad it would be an extremely expensive thing to make a pier of that description there; and as at times there is a heavy sea coming in with a northerly wind, I very much doubt whether you could make a pier of that description for less than I have stated in my report; I have stated from 150,000 *l.* to 200,000 *l.* for the two, but I should doubt very much whether you could make a pier for less than 80,000 *l.*

3787. Do you conceive those piers would be absolutely necessary?—I conceive so, if you contemplate making it a perfect station. Insufficient piers of piles, and temporary works of that description, frequently occasion more delay than the public would be inclined to submit to. You must have cranes, coal stores, and a regular establishment, and you ought to have smiths' forges and all those things ready in case of accident. I do not think you could estimate that at less than I have stated.

3788. You contemplate the same sort of station at Portpatrick?—Certainly; nor do I think you could have less. With regard to Loch Larne, I did not see the plan that was proposed there, and therefore I was obliged to take a chart and consider the proper place for making a pier there. By the Admiralty chart, the entrance is about 4½ fathoms at low water; now these steamers generally draw from 10 to 12 feet, and more, and frequently come in with a heavy sea, and you must have room for them to bring up; they are not very manageable, and you must have space for that; and if you were to run out a pier there of the same length as the opposite side, it would be a very expensive operation. Then again, another question is, what should be the precise place? Larne is a loch which has still water at the upper end, and I do not think it would be prudent, if you are to preserve such a fine loch as it really is, to restrict the entrance; if you were to restrict the entrance, it would be attended by a corresponding deposit at the upper end, which might in the end deteriorate the port. I mention that to show that you might make a good port at Loch Larne, but to make it a proper station it would be attended with considerable expense.

3789. Might not a landing-place, or piers, or whatever was necessary, be made where the present landing-place is, which is so completely land-locked that there is never that heavy sea?—Yes, but still, although you have no heavy sea, if you have a corresponding depth of water the works will be expensive.

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3790. Mr. *Corry*.] Has any deposit been formed at Portpatrick or Donaghadee since the new works have been made?—Very little. There has been some at Portpatrick; at the entrance of the inner harbour it is deeper than it was originally, and I can easily understand why there has been that deposit; there has been a great deal of building going on, and sand brought by a small torrent, which is in course of being removed, and I believe that any accumulation in future will be very small.

3791. Mr. *Stanley*.] Is the bottom of Portpatrick harbour entirely rock?—There is a stratum of sand over the rock, but it deepens very rapidly. I consider Portpatrick is very desirably situated; it is well out in the sea; it is almost a headland; the moment you clear it you are in the open sea.

3792. Is there much of the passage between Portpatrick and Donagbadee under the lee of the land during the heavy gales from the south-west?—No, it is directly exposed to the south-west.

3793. *Chairman*.] But the harbour is quite secure when you are in it?—Quite secure.

3794. There is no swell in the harbour?—Very little; and when completed there will be much less.

3795. Lord *Newry*.] The fact of the entrance of the harbour being shallower than the rest of it, would cause a deposit to be collected in the harbour if anything came into it to form a deposit?—It would; but when the harbour is completed, and all those minor arrangements which are consequent upon completing the harbour, I apprehend there will be very little deposit indeed.

3796. Mr. *Stanley*.] Have you ever been employed to survey the harbour of Holyhead with a view to its improvement?—Never.

3797. Do you know that passage?—I have crossed there repeatedly.

3798. Do you know the passage between Liverpool and Kingstown?—I have crossed there also.

3799. Is it your opinion that it is desirable to have a short sea passage in all communications between England and Ireland?—I am decidedly of that opinion.

3800. Mr. *Vivian*.] And of course this principle will apply also to the southern communication with Ireland?—I should say it would apply everywhere, for even with the very fastest vessels (and steam certainly is improving daily more and more) there is always a degree of uncertainty when you are upon sea. As long as your machinery remains good, and the vessel in order, you may do very well, but an accident may happen; and when an accident does happen, a mile or a mile and a half may make all the difference. I am clearly of opinion, that the shorter the sea passage, the better and more regular will be the communication, as a general principle.

3801. In the estimate you have made of the annual charge of a steamer of 300 horses' power, do you calculate upon the vessel performing the voyage each day?—Yes, I do.

3802. In the passage from Milford to Waterford, two vessels only would have to make the passage each day?—In the estimate I have given of the cost of working a steamer of 300 horses' power, of course I have merely taken it with reference to the 34 miles from Loch Ryan to Loch Larne; if you go farther, of course you must have more coal and a greater expenditure.

3803. Can you say at all what would be the probable expense of working a steamer of 300 horses' power upon a 90 mile passage?—At present, I can only form an opinion by the returns ordered by the House of Commons, without going into further details.

3804. Mr. *Stanley*.] Can you give any opinion as to the proportion of the rate of travelling by railway and by sea?—You may take the speed by railway at three times that by sea, generally speaking.

Mr. *George Smith*, called in; and Examined.

Mr. *G. Smith*.

3805. *Chairman*.] WHAT situation do you hold?—Engineer to the Corporation for preserving and improving the Port and Harbour of Belfast.

3806. Can you give the Committee any information as to the depth of water from the entrance of Belfast loch up to the quays of Belfast?—Nine feet water below the sill of the graving dock.

3807. Is that at low-water spring tides?—Taking the sill of the graving dock as the point, we have nine feet below at the lowest spring tides.

3808. Sir

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3808. Sir *Robert Ferguson.*] At every point in the channel?—Yes, from the loch upwards.

3809. Mr. *Grogan.*] Do you mean to convey that a vessel drawing nine feet of water would be able to go up at all times of the tide?—Yes.

3810. Has the corporation of Belfast any works in contemplation to improve the access to the harbour?—They have; it is their intention to go on with the improvements which were laid down in 1833, and for which they have an Act of Parliament.

3811. Have they funds?—They are raising funds now by debentures for that purpose.

3812. Are you at work upon it now?—We are; we are deepening beyond nine feet.

3813. What distance of river would you still have to deepen to perfect the cut you have at present made?—We have a quarter of a mile; it is a long river. We have about a quarter of a mile further to deepen to bring it to this depth, but it is our intention to make it still deeper at the lower end of the cut.

3814. *Chairman.*] Have you the nine feet of water independent of the quarter of a mile?—We have.

3815. When the improvement shall be effected will you have a greater depth than nine feet?—We expect to have a greater depth at the lower part of the channel.

3816. Sir *Robert Ferguson.*] Have you lately tried the depth in that part of the old channel which lies between the New Cut and Garmoyle?—I have; the part complained of.

3817. What depth have you found there?—I have found the same depth we have in the new channel, as near as may be. It is our intention to still further deepen those parts.

Mr. *Josiah Williams*, called in; and Examined.

Mr. J. Williams.

3818. *Chairman.*] HAVE you any statement you wish to make to the Committee with respect to the southern communication between England and Ireland?—I appear before the Committee in pursuance of a resolution adopted at a meeting of the council and corporation of Waterford, held the 25th day of May 1842, of which the following is a copy: "That in furtherance of a resolution passed at a late meeting of the citizens, that Alderman Milward, Mr. Williams, and Mr. Dering be, and they are hereby named a deputation from this body to wait upon the Committee of The House of Commons appointed on the subject of Post-office Communication, to urge the necessity of a southern packet line between England and Ireland, and to represent the great advantages possessed by the Harbour of Waterford for such line at this side of the Channel."

3819. Can you state to the Committee that it is a matter of importance and convenience to the public that there should be a southern line of communication between England and Ireland?—It is a matter of very great importance to the public generally.

3820. Would you consider it of equal importance if the time occupied between London and Dublin by Holyhead, and from Dublin to Waterford, were much shortened?—A line of communication direct from the South and West of England and South Wales to the South of Ireland is considered a matter of great importance to the merchants in Waterford, Clonmel, Kilkenny, Ross, Wexford, Cork, and other towns.

3821. Do you consider it of importance with a view to correspondence, or for the conveyance of passengers?—I consider it of importance in both points of view; the trade of those towns depends so much upon the facility of communication with the South and West of England, that anything likely to interrupt it would be productive of injurious effects.

3822. Am I to understand that you would consider it an inconvenience if all the correspondence to those towns from the South of England, in which I include the Western parts of England and South Wales, were carried round by Dublin?—I should consider it a very great inconvenience to the districts I have mentioned.

3823. Do you apprehend that inconvenience would be felt at Cork, as well as the towns you have named?—Unquestionably.

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3824. Is the trade between Bristol and Waterford and Clonmel, and that neighbourhood, so considerable that very great inconvenience would be felt if there were not a rapid communication between those places?—Yes, very great inconvenience would be felt, considering the extent of the trade between the South of Ireland, and the South and West of England, and South Wales.

3825. Mr. *Morgan.*] There is a very extensive trade between Waterford and the South of Ireland generally, and South Wales?—Yes.

3826. It is very great in the exchange of coal and iron on the one part, and of provisions on the other?—Yes; and even further east than Waterford, to the ports of Ross and Wexford, from which there is a very extensive trade to the ports in the Bristol Channel generally, particularly to Swansea, Cardiff and Newport, in the article of coal.

3827. *Chairman.*] Is there much trade between the South of Ireland and what is generally called the West of England, Somersetshire, Devonshire, and Cornwall?—A very considerable trade, both from Waterford and Cork, with all points from Falmouth up to Portsmouth and Southampton. There is a regular and steady trade.

3828. Can you form any idea of the average number of passengers which might be expected, were there large efficient boats to run daily between Waterford and Bristol?—As the communication has only been twice a week, I have not sufficient data to enable me to give a positive opinion on that subject. Under present circumstances, the number does not average more than eight or ten all the year round.

3829. Do you think a great many persons who now go by Dublin would take advantage of that southern line, if the communication were accomplished?—I do; I think it would embrace a district which would extend as far as Limerick and other large towns in the interior.

3830. Do many people go by Dublin, in consequence of the packets to Bristol going only twice a week?—I have no doubt that that is the case.

3831. And that applies to the return voyage also?—Yes.

3832. Do you conceive that passengers are deterred from taking that passage on account of the vessels carrying pigs and other cargoes?—I do think that that operates occasionally.

3833. Mr. *Grogan.*] You stated you considered a very great advantage would arise to the South of Ireland, and to the South and West of England, and to South Wales generally, from a direct Post-office communication between those ports; in your view, was that communication to be by sea from Waterford to Brean Down, a harbour near Bristol, or to Milford, by the present route?—For passengers, I decidedly think a communication to Brean Down would be preferred.

3834. Mr. *Vivian.*] If the passage to Brean Down were adopted, would not the whole of South Wales be excluded from the direct communication which at present exists from Milford to Bristol, through South Wales?—Unless a communication by steam were established from Cardiff or Newport, or some port proximate to the Bristol Channel, to Brean Down, to meet the Irish mail at that point; I think that would obviate the difficulty.

3835. Mr. *Morgan.*] Do you not think a larger number of passengers might be expected from Waterford to Milford, if the packets were placed upon a proper footing?—I do not think the number of passengers by that line would very materially increase, because there is not so much intercourse between Waterford and the counties of Pembroke and Carmarthen as there is to Glamorganshire and Monmouthshire, and places further up the Channel; and I really do not think that persons travelling to the capital would like to encounter a long land journey through South Wales, unless the speed was greatly accelerated, in preference to the south passage to Brean Down.

3836. Is there not generally a disposition on the part of travellers to avoid sea voyages as much as possible?—Certainly, I believe there is.

3837. If there were efficient packets at Milford which sailed regularly, and made the voyage in eight hours, do you not think it would be a great inducement to persons to go by that route?—I think it would induce many to go, but not to any great extent, for the reasons I have stated, namely, that there is not such an extensive intercourse between Pembrokeshire and Carmarthenshire as there is with the counties further up the Channel.

3838. *Chairman.*] Are we to understand that you think the expense and inconvenience

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convenience of a long land journey through South Wales is the principal cause why people do not take advantage of that communication?—I think it operates very powerfully with many.

3839. Mr. *Vivian.*] Are there any trading vessels between Waterford and Milford?—A few; there is not much traffic between Waterford and Milford direct.

3840. What do they convey from Waterford?—Flour and grain; our trade from Waterford to South Wales is not very extensive until it approaches Swansea and Llanelly, and then up the Channel to Neath, Cardiff and Newport. We have a very extensive and very constant trade with those places.

3841. Would the cost of the packet establishment at Milford be considerably reduced, if the packets were allowed to carry flour and grain to Milford?—It strikes me from the statement I have seen of the cost of the Milford establishment, that it might be very considerably curtailed, even without the advantages derivable from carrying goods.

3842. Do you know what coal the packets consume?—The Troon or Ayr coal. The packets invariably use Scotch coal, both at Milford and at Waterford.

3843. Are you yourself connected with steam-vessels?—I am.

3844. Do you know the comparative duty performed by the Scotch and Welsh coal?—The Welsh coal is much more durable.

3845. What is the comparative expense at Waterford of the Scotch and Welsh coal?—I believe the Scotch coals cost rather more, and they are so much more swift in consumption, that probably two tons of Welsh coal will give as much steam as three tons of Scotch coal.

3846. Then if the packets at Milford used the Welsh coal instead of the Scotch coal, there would be a considerable saving?—There would.

3847. Mr. *Morgan.*] Have not parties travelling from the South of Ireland to South Wales the option of going by the long water passage to Bristol, or the short water passage to Milford?—They have.

3848. Do you not think great inconvenience would arise if the Milford packets were altogether abolished and those parties had only the opportunity of making the long water passage?—I have no means of ascertaining the number of passengers who go by way of Milford at present, but I believe the number is very limited.

3849. Have you ever heard that that is in consequence of the very bad accommodation and the ill appointment of the packets?—I have heard that stated.

3850. Mr. *Grogan.*] If I understand you correctly, you stated that the principal trade between the South of Ireland and South Wales was with Bristol and its immediate vicinity, and not to the Milford district?—We have a trade with Pembroke and Milford, but that is trifling compared with what exists with Swansea and the other towns between Swansea and Bristol.

3851. Allow me to ask you which you consider of most importance, the commercial transactions of Waterford and the southern districts of Ireland generally with London, or Dublin?—Decidedly with London.

3852. Do you consider the Bristol trade, including Swansea and that district you spoke of, is more important to the South of Ireland than the trade with Liverpool, Birmingham, Manchester, and the North?—We have an extensive trade from the South of Ireland, both to London and the south-west districts of England, as well as to the North of England. I am satisfied a direct line of communication from the Bristol Channel would be beneficial to the South of Ireland, without at all impairing the advantages we at present enjoy from the northern communication by way of Dublin.

3853. Which do you consider of the greatest importance to Waterford and the South of Ireland, the commercial transactions with the North of England, or the commercial transactions with the South and South-west of England?—I consider our commercial correspondence with the North of England to be of first-rate consequence; but I am not prepared to surrender a direct communication with the South and West of England, considering that to be of almost equal importance.

3854. Do you consider that Waterford and the South of Ireland would derive great advantages and an increased facility of communication, if the correspondence from London by Liverpool and Holyhead could be accelerated by six

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hours, so as to reach your merchants' hands six hours earlier than they do at present; would not that be a great advantage?—It would be an advantage; but I do not think it would be an equivalent for a surrender of a more direct communication with the South of England, for, although the correspondence by the northern line might be accelerated six hours, the circuitous route which letters from the South of England would, in almost all cases, have to take, would occasion a delay which would not be at all compensated by the increased rapidity of the transmission by way of Liverpool or Holyhead.

3855. As a commercial man, and deputed by commercial cities, which should you consider of the most value, the arrival of letters in 20 hours in one month, and 30 hours in another month, or a stated regular transmission of 24 hours?—I think punctuality is the great object in correspondence, and the want of that is what we have had to complain of since the discontinuance of forwarding the London mail by way of Milford. The Milford packet frequently arrives at 10 o'clock in the forenoon, and the coach from Dublin, which arrives at nine o'clock, has failed to bring the London mail, which, of course, cannot come until the following day.

3856. You consider then a regular delivery, though that might not be of the most rapid description, to be far more important to commercial communications than even the most rapid delivery, if uncertain?—I do.

3857. Then the sea voyage between Holyhead and Dublin being only 60 miles, and the contemplated voyage between Brean Down and Waterford being upwards of three times that distance, which do you conceive would be most likely to lead to a want of punctuality and regularity in the delivery of your letters?—Of course there should be a larger margin allowed for the longer line of sea communication.

3858. Then as travelling by land is more regular and certain than by sea, the longer the land journey and the shorter the sea voyage, the better the route must necessarily be?—That is the received opinion.

3859. And likewise, wherever railroads have been or could be established, 30 miles of railroad being estimated to be equal to 10 miles of sea voyage, the more sea voyage you have, the more disadvantageous the route must be?—Yes.

3860. Now, without going so far as to abandon the southern line of communication between Bristol, or Milford and Waterford, after having assented to those propositions, do you not conceive that an improved line of communication by railway to Holyhead, with superior steam-packets to Kingstown, would necessarily be productive of more regularity in the delivery of your letters, and would be of more importance to your commercial transactions, though the time taken by the southern line would occasionally be shorter?—I believe, from the district to which I attach a great deal of consequence, the South and West of England, even the longer communication by sea which would be induced by Brean Down, would generally insure a greater facility of communication, than if the correspondence were sent round by way of Holyhead and Dublin.

3861. Supposing, by any improvements from railways and steam-boats, the delivery of your letters in Waterford could be accelerated six hours, by way of Dublin, would not that be of the greatest importance?—I have stated that an acceleration of six hours by way of Dublin would be an advantage, but it would not make up for the loss of time which would be induced by the circuitous route which all the letters from Cornwall, Devonshire, Hampshire, and the western counties of England, would have to take; it is of great moment to us to maintain as rapid a communication with those districts as possible, and I do not think the acceleration of speed, by way of Dublin, would at all compensate for the delay occasioned by that circuit; I conceive we can always have our communication from Southampton or Portsmouth, or any port in the West of England, more direct by way of Brean Down, or even by Milford, than by the northern line by way of Dublin.

3862. Mr. *Shaw*.] Are you assuming that railroads are made between the places you have named in the South and West of England and London?—Yes; assuming that, the same observation would apply.

3863. *Chairman*.] Which would you consider of the greatest advantage to the South of Ireland, and the South and West of England, having the most rapid line of railroad to Holyhead, the best possible packets from Holyhead to Kingstown, and the railroad communication from Dublin to Limerick or Kilkenny, Mr. J. Williams.

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kenny, or having a direct communication between Waterford and the Bristol Channel?—I should prefer a direct communication with the Bristol Channel.

3864. Mr. *Vivian*.] It appears by the returns which have been presented from the Custom-house of the number of vessels, with the amount of their tonnage, that have entered inwards and cleared outwards, to and from the ports in the Bristol Channel and Ireland, in the three years ending 31st December 1841, that, on the average of these years, 841 vessels, of 62,886 register tonnage, entered the ports on the north coast of the Channel, and situated on the line of the mail road from Bristol to Waterford; and that, in the same period, 3,499 colliers, of 276,695 register tonnage, and 317 other vessels, of 23,923 register tonnage, cleared outwards from those ports for ports in Ireland; and that the value of the exports was 374,120 *l.*; now, do you consider that the direct and existing communication from Bristol to Waterford could be interrupted without causing a considerable inconvenience and injury to the trade of those ports on the line now traversed by the Milford mail?—I have already stated that assuming powerful and efficient packets to be established between Brean Down and Waterford, I do not anticipate there would be much difficulty in a small steamer plying from Cardiff or Newport to meet the mail at Brean Down.

3865. Are you sufficiently acquainted with the upper part of the Bristol Channel to say where convenient landing-places could be formed upon the Welsh and English coasts?—I am not.

3866. You are then assuming that such arrangements could be made?—Yes.

3867. And you do not know at all as to the practicability of the plan?—I do not.

3868. With respect to the city of Waterford, supposing the mail from Milford could arrive there at six o'clock in the morning, could there be a more advantageous arrangement for the mercantile interests of Waterford than an arrival at that hour?—Nothing could be more convenient for Waterford, and there is nothing then to prevent the arrival of the steam-packet at that hour, at any state of the tide.

3869. The time it takes to convey letters from Bristol to Waterford, by Hobb's Point, is about 28 hours; do you think it is possible to adopt any line which would, under all circumstances, be more convenient and direct for a Post-office communication between those two ports, setting aside the advantages of the mail in its course passing through South Wales, than that by Hobb's Point?—I should prefer Brean Down; but unless a packet station were established at that point, I should consider the preferable mode of communication would be at Hobb's Point, which would be shorter by many hours than by Dublin.

3870. But by starting from Brean Down you would have all the inconvenience and irregularity of a sea voyage of double the length of that from Hobb's Point to Waterford?—If a powerful line of packets were established from Brean Down to Waterford, I should consider the voyage might be made as certain as by Hobb's Point.

3871. Mr. *Morgan*.] If the transmission of the mails through South Wales were to be improved by proper and efficient packets established at Milford, so that the mail could always arrive with certainty at Waterford at seven o'clock in the morning, would not that be a satisfactory and convenient arrangement?—Nothing could be more satisfactory than that arrangement to the mercantile interests of Waterford; but the arrival of the mail direct from the capital in 24 hours, by way of Brean Down, would secure the despatch of all letters for Cork and Limerick at nine o'clock p.m., immediately on their arrival at Waterford, and such letters would then be delivered in those cities at nine o'clock the following morning; the important towns of Ross and Wexford would have their letters nearly as soon as we should have them at Waterford, as they could be landed at Duncannon from the packet, on their way up to Waterford, instead of being despatched from the latter place, which would effect a saving of at least six hours.

3872. Mr. *Vivian*.] What sized steamers should you recommend for the Milford station?—I should say boats of about 250 horses' power.

3873. Would there be any difficulty in steamers of that size approaching Waterford harbour at all times?—Waterford is accessible to steamers of all sizes, without difficulty or interruption, at all times.

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3874. Would there be any difficulty in passing the bar with a steamer of that size, at all times?—I conceive not; the wind from the north, which would affect the tides most materially, is a smooth water wind in Waterford Harbour; even then there will be from 12 to 14 feet water on the bar at the lowest spring tides, and steamers would be enabled to navigate it without difficulty.

3875. What time is it low-water spring tides at Waterford?—About 12 o'clock.

3876. Then if the packet arrived at Waterford about six o'clock in the morning it would never arrive there at low-water spring tides?—At any time from six o'clock to 10 or 11, she could not by possibility, under any circumstances, encounter any inconvenience from what is called the bar or sand-bank at the entrance.

3877. Mr. *Morgan.*] Would there be any difficulty or inconvenience in the packet getting up to Waterford in the dark?—Our commercial steam-packets, which are large packets of 300 horses' power, frequently go up at all hours of the night; the mail packets also arrive very late at night, and I never knew any case of accident to occur.

3878. Mr. *Grogan.*] If I understood you, in the former part of your evidence you stated that occasionally the coaches arrived from Dublin without the English mails?—Frequently.

3879. That arises, I suppose, from the uncertainty of the sea voyage?—I presume it does.

3880. Are you able to say, upon an average, how many times that occurs in the course of the year?—I should think it occurs 50 or 60 times in the course of the year.

3881. Then of course it entails very great inconvenience upon the merchants?—Yes; and inconvenience which would be obviated to a certain extent, if we had a direct communication with London by a southern line, either by Milford or Brean Down. We have but one mail in the day from Dublin to Waterford, which arrives at nine o'clock in the morning; if that does not bring the English letters, the merchants cannot expect them until the following morning. If we had a southern line established, although it might occasionally not arrive so early as nine o'clock, it might be fairly calculated to reach in sufficient time during the day for commercial purposes.

3882. Does it ever occur to you to write to the neighbourhood of Swansea itself, or Bristol, on commercial transactions?—Frequently.

3883. Which line do you send your letters by, under the average circumstances of the year, by Milford, by the present trading boats to Bristol, or round by Dublin?—Invariably by Milford.

3884. Do you do so now?—Yes.

3885. Do you send duplicates by way of Dublin?—Never in any case.

3886. Do you know whether it is the practice to do so?—I have heard it stated once or twice, but I believe it is a very rare occurrence.

3887. *Chairman.*] You have been asked whether it would not be a great convenience if your letters arrived by Hobb's Point by six o'clock, and you answered that in the affirmative; would it not be a greater convenience if those same letters could arrive in Waterford at nine o'clock the previous evening, or even in very long passages, at six o'clock the next morning?—As regards the dispatch of the inland mails to Cork and Limerick, it would be decidedly advantageous that they should arrive the preceding night, because they would be all the night travelling; but for commercial purposes, six in the morning would be early enough for Waterford and its vicinity.

Lunæ, 13° *die Junii,* 1842.

MEMBERS PRESENT.

Mr. Corry.	Lord Newry.
Lord Emlyn.	Mr. Shaw.
Mr. Grogan.	Mr. Stanley.
Mr. Mills.	Mr. Vivian.
Mr. Morgan.	

LORD INGESTRE, IN THE CHAIR.

Captain *William Rees*, called in; and Examined.

Capt. *W. Rees.*

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3888. Mr. *Morgan.*] YOU are Captain of a steam-packet which plies between Tenby and Bristol?—I am.

3889. How long have you been on that station?—Thirteen years.

3890. As captain of a steam-packet?—Yes.

3891. Were you ever captain of a sailing-packet?—I was 17 years master of a sailing-packet.

3892. In the Bristol Channel?—Yes; I have been 32 years navigating the Bristol Channel.

3893. Then I presume you are very well acquainted with the navigation of the Channel?—Yes; I know the Channel as well as any man.

3894. Both with steam-vessels and sailing-vessels?—Yes.

3895. I believe the navigation of that Channel is sometimes difficult, according to the weather?—It is difficult in bad weather.

3896. Is it your opinion that there is a possibility of making voyages from Bristol, or from any port in the Channel, to Waterford, at regular fixed periods in the day?—No, I do not think they can do so.

3897. At all times of the year, and at all times of the tide?—There are times when they could not go up and down the Bristol Channel at all; I have found times when I could not go up and down.

3898. Have you known, from your experience, that there are times when the weather is such that you could not go up and down the Bristol Channel?—I have sometimes been obliged to hear up for Penarth, with as fine a vessel as any out of Bristol, for her power.

3899. Lord *Emlyn.*] What was her power?—About 120 horses' power; two sixties.

3900. What was her tonnage?—About 150 tons.

3901. Mr. *Morgan.*] It is your opinion that a steam-packet cannot reckon on making its regular voyages from a port in the Bristol Channel to Waterford and Cork at fixed hours every day, within a certain given time?—I think it is quite impossible.

3902. What is your reason for thinking so?—There are gales of wind which would prevent her getting down the Channel at any time—south-west winds; there is a tremendous sea which comes in the Channel, the water is shallow, and the tide runs strong, which would prevent a vessel going a-head; she could not get steerage way; they could not command the vessel.

3903. Are the steam-packets, going up and down the Channel, often delayed in consequence of the weather?—Perhaps 20 times in the course of the year.

3904. Mr. *Stanley.*] Do not those severe south-westerly gales last generally three or four days together?—I have been four tides detained going down the Channel.

3905. Mr. *Morgan.*] Are you now speaking of the class of steam-vessels which you have been in the habit of sailing in, or do you think it would make any difference if they were first-class vessels, of 500 tons burthen and 250 horses' power?—Perhaps a very large vessel might make head against it; I have seen the time I could not do it, and I have commanded the largest vessels out of Bristol, the Queen and the Osprey, both to Cork, Waterford, and Dublin.

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3906. Do you think with such a vessel as I have mentioned the passage might be made with certainty and despatch?—The vessels I have named have been obliged to put into Penarth in bad weather.

3907. Do you think the passage could be made from Milford to Waterford with greater certainty and regularity than from any port in the Bristol Channel?—The shorter the distance by water, the more certain the passage.

3908. Is there more difficulty within the Channel or outside of the Channel?—In coming up the Channel all the difficulties begin after you pass Milford; there is no difficulty between Milford and Waterford, it is all open sea.

3909. Then the difficulties commence after you pass Milford?—Yes; coming up the Channel.

3910. Are you acquainted with Brean Down?—I pass and repass it every week; I have been in very close, beating up in a sailing vessel; but I have never been on shore there.

3911. Would you undertake to say that you could always make the passage from Brean Down to Waterford with such a vessel as I have described, with 250 horses' power, and 500 tons burthen?—I suppose you could make it with such vessels.

3912. Would not great impediments be found to that passage?—No, I should think not, with vessels of that size.

3913. You think the passage might be made at all times?—Except in fogs and thick weather, when it would not be prudent to run; there is the Culver Sand and the One Fathom Bank; the masters of vessels would not like to run in a fog or hazy weather.

3914. You are acquainted with Milford Haven, are you not?—Yes, I know it well; I am a native of Tenby.

3915. Is there any difficulty in sailing into Milford Haven?—Not the least, so that you make the lights; it is a fine open harbour. In dark weather there might be a difficulty in making the land; but once making the lights at the harbour's mouth, day or night, there is no difficulty in entering the harbour.

3916. You could always make Milford Haven with certainty; Hobb's Point, for instance?—Yes; I have never been prevented making Milford harbour.

3917. Lord *Emlyn.*] You have been in the habit of making the passage at all times?—I have, for 32 years.

3918. And you never were detained in getting into Milford?—Never.

3919. You have been prevented going down and up the Bristol Channel?—I have been detained at Tenby with a south-east wind; you could not get out of Tenby at all until the gale abated.

3920. You found no difficulty in getting in and out at Milford?—I have been able to get in and out of Milford at all times; I have never been detained.

3921. Mr. *Miles.*] How long have you been detained coming up the Channel?—I have been detained a day.

3922. Where was it you were detained?—I have been detained at Tenby.

3923. Have you ever put into Penarth Roads?—Not going up; we had no occasion to go there; it is a fair wind going up; a south-east wind would prevent us going up the Channel, and then there is no shelter at Penarth.

3924. Mr. *Morgan.*] What is the usual length of your passage from Tenby to Bristol?—The average length of the passage is about 12 hours.

3925. What do you suppose would be the average passage from Waterford to Bristol?—I should think 24 hours.

3926. Mr. *Miles.*] With your steamer?—With any steamers that could be built, the average passage, taking the year round.

3927. *Chairman.*] You have said you have been detained in Penarth in vessels coming out of Bristol?—Yes.

3928. Those vessels had 150 horses' power?—I have never been detained in one of the large vessels; I have been detained in my own vessel, of 150 horses' power, two or three times.

3929. Had your vessel any cargo?—Yes.

3930. Do you think in the weather you were detained, a vessel of 300 horses' power would have been detained?—Perhaps not.

3931. Do you think the difficulties of the Channel would be obviated, if there were a light put on the Culver Sands, and a light on the Rowse Point?—It would be a very great acquisition to the Channel if there were lights there.

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3932. Do you think, with those lights, vessels might navigate the Channel at all times with perfect safety?—I think they might.

3933. Do you conceive there is any great difficulty in the part of the passage from Waterford to Brean Down, when you come inside of Milford?—There are more difficulties to encounter after you pass Milford; there are sand-banks on each side of the Channel.

3934. Assuming lights?—There are many times in thick weather, when you could not make the lights at all.

3935. Do yon think you would be longer, generally speaking, in going from Brean Down to opposite Milford, or from Milford to Waterford; that is about half way, is it not?—Yes, about half way.

3936. With a powerful steamer, which half of the way, both ways, would you do the quickest?—I should do it quicker from the Holms or Brean Down to Milford, because there is a strong tide in your favour; and going across from Milford to Waterford, you have no tide to assist you.

3937. I have supposed the vessel to start at all times, and therefore she would have to start sometimes at low water, and have the flood against her?—Then she would do it a great deal quicker from Milford, because she has a strong tide against her for six or seven hours.

3938. Taking Brean Down, and suppose a vessel bound to Waterford, which part of the passage would she do the quickest, that part inside of Milford, or the part outside?—The part outside; there is no tide against her outside of Milford; the tide runs up and down the North Channel.

3939. Then you consider the sea part of the passage no impediment?—I do not.

3940. What speed do you think a vessel of that description, of 300 horses' power and 500 tons burthen, could go at against a heavy head wind?—I should think, with a head wind blowing hard against her, she would not make more than six or seven knots. I have seen the time that I have not made three.

3941. At what rate would a vessel of that description go through the water, starting from Brean Down at low water?—Perhaps she would not go faster than five or six knots.

3942. At what rate would she go over the ground with wind and tide in her favour?—Twelve or 13 knots.

3943. Would she not get the tide in her favour part of the way, even supposing she started at the commencement of the flood, before she got to Milford?—Yes.

3944. Then do you not think having the whole flood-tide against her from the commencement, and the ebb in her favour part of the way, she would perform that part of the passage quicker than she would the other half, the wind being exactly the same all the way?—If there was a moderate tide a vessel of 250 horses' power would be down at Milford by high water, so that she would not have any benefit of the ebb any part of the way.

3945. You mentioned having been detained at Tenby; have you ever been obliged to put into Tenby by stress of weather?—No; after getting beyond Milford, bound to Bristol, I have been obliged to put back twice or three times in the vessel I now command from Waterford.

3946. You say your vessel is 120 horses' power?—Yes.

3947. Had she a cargo in at those times?—Yes.

3948. That makes a considerable difference in steaming, does it not?—Yes.

3949. Do you consider the Bristol Channel much more easily navigated by steam than in a sailing vessel?—Very much so.

3950. That the difficulties were very much greater in a sailing vessel than they are in steamers?—Yes.

3951. Steam has altered the whole face of the difficulties in the Bristol Channel?—Yes; and the Channel is much better lighted than when I commanded in sailing vessels.

3952. Can you suggest any other lights than those I have mentioned, one on the Culver Sand and one on the Rowse Point?—It would be very useful if there were one on the Scar-weather.

3953. Mr. *Miles.*] Have you ever met with any accident while you have been navigating the Bristol Channel?—I have not.

3954. And how long have you been navigating it?—Thirty-two years.

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3955. Lord *Emlyn.*] It is your opinion you could not make voyages regularly, so as to make a good average, if you have to start at all times of the tide from Bristol to Waterford?—I think not.

3956. Mr. *Miles.*] Do you think your vessels have always been of sufficient power to go up and down the Bristol Channel?—I do.

3957. Have you never found any difficulty in a gale of wind?—No.

3958. *Chairman.*] I suppose you have always taken the tide, so as to get to Bristol at high water?—We always leave those ports at high water.

3959. Going up or down the Channel?—We always leave all places at high water; Milford, Haverfordwest, and Hobb's Point.

3960. Do you suit your tides so as to arrive at Bristol at high water?—Yes.

3961. Mr. *Stanley.*] You are not tied down to particular times as to starting?—Yes, we are always tied down to time.

3962. But you have your time fixed so as to suit the tide?—Yes; every master fixes his own time.

3963. Mr. *Vivian.*] You make your arrangements so as to start and arrive about the time of high water?—Yes.

3964. Mr. *Stanley.*] Are fogs very prevalent in the Bristol Channel?—Yes, they are, very much so.

3965. More so than in other localities?—Yes.

3966. Mr. *Miles.*] Were you ever stopped in consequence of a fog?—Yes; I have been obliged to bring-up many times in the Channel.

3967. Mr. *Morgan.*] Are fogs prevalent in Milford Haven?—Yes, they are.

3968. More or less so than in the Bristol Channel?—I do not think they are more so than in the Bristol Channel.

3969. Have you observed that fogs generally prevail throughout the Channel, or do they prevail more in certain parts than in others?—Generally throughout the Channel; I have not found more in any particular part.

3970. *Chairman.*] Have you found when there were fogs in the Bristol Channel there were none outside?—I think fogs prevail more in the Channel than outside; I have been going down many times in a fog, and when I have got out it was clear.

3971. Mr. *Vivian.*] In the passage from Bristol to Milford, where would you have the greatest difficulties in the navigation to encounter; where would the greatest power of steam be required, from Bristol to Milford, or from Milford to Waterford?—The greatest difficulties are from Bristol to Milford; you have nothing to pick you up from Milford to Waterford.

3972. Would it require a greater power of steam from Bristol to Milford than from Milford to Waterford?—I think it requires more from Bristol to Milford.

3973. Would a larger class of steamers be required to perform the voyage from Bristol to Waterford than from Milford to Waterford?—Certainly; I should think a larger class would be required from Bristol.

3974. *Chairman.*] Will you state why?—She would have a greater length of time to make the passage; and she would be required to make it in a certain time.

3975. Do you not think a vessel which had to encounter a heavy sea outside, would require as much power as in the Channel?—She would require more power if she had to make her passage in a certain time; there are times when my vessel could not make the passage at all.

3976. Do you not think if she could not make the passage from Bristol to Milford, there would be equal difficulty in making it from Milford to Waterford?—Yes, there would be equal difficulty.

3977. Mr. *Vivian.*] Could they make the passage from Milford to Waterford when they could not make it from Bristol to Waterford?—Yes, I am satisfied they could; those little Milford steamers are too small to make the passage regularly.

3978. Are those steamers what would be termed efficient vessels for Government purposes?—I think they are too small even for that passage.

3979. *Chairman.*] Do you think it necessary to have vessels of greater power inside the Bristol Channel than outside?—Yes, I do; the wind and the sea come into the Channel, in south-west winds, like a tunnel; you have the open sea when you get outside of Milford, and here you have sand banks on each side of you.

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3980. Mr. *Vivian.*] Do you ever put into the Mumbles?—I have put in many times going down, not coming up; I have put in in north-west winds.

3981. Is there good anchorage ground at the Mumbles?—Yes, very good.

3982. What protection would be required to make it a safe and commodious harbour?—The water is very shallow.

3983. Is it shallow to the eastward of the head?—Yes; it would take an enormous expense to make a pier there.

3984. Supposing you were to run out a pier east-north-east from the Mumbles Head, would that afford sufficient protection to vessels?—I should think it could not be done without laying out an enormous sum of money to make such a harbour as Kingstown Harbour in Dublin Bay, which is the finest pier harbour in the world.

3985. Do you think Captain Tayler's floating breakwater is applicable to the Mumbles?—I do not.

Mr. *John Hammond*, called in; and Examined.

Mr. *J. Hammond.*

3986. Lord *Emlyn.*] I BELIEVE you are in command of one of the mail-packets at Hobb's Point?—I am.

3987. How long have you commanded a mail-packet?—Twenty years, next November.

3988. How long have you been upon the Milford and Waterford station?—Ten years, next November.

3989. What are the facilities for embarking the mails at Hobb's Point?—There is a pier there, with an inclined plane.

3990. Have you ever had any difficulty in embarking the mails there?—One case occurred last winter, when the mail could not be embarked in a boat, in consequence of a violent west-north-west gale, so that the packet could not go alongside, and the boat could not reach the packet from the pier.

3991. If you had got the mail on board, could you have made the passage?—I should not have proceeded.

3992. Should you, if you had had a superior class of vessel?—No, not in that case.

3993. Not in any class of vessel?—Certainly not.

3994. It was a hurricane?—It was a perfect hurricane.

3995. Do you know how many times the packet was too late for the mail-coach at Hobb's Point last year?—Twelve times.

3996. Do you know what the causes of the non-arrival of the packets to save the coach on those occasions were?—Twice on account of an accident to two of the vessels, nine times out of the other ten from want of efficient packets, and the twelfth time from a heavy gale from the south-east, when no steamer, in my opinion, could have made the passage in time to forward the mail by the coach.

3997. You think, with a better class of vessels, those nine times the packet was delayed would not have occurred?—Certainly not.

3998. How much too late were they?—I should say, from one to three hours.

3999. Is there any difference in the packets, or are they all of the same quality and power?—They vary with respect to speed.

4000. Can you state what the difference is?—There is one vessel which averages, taking the year through, under 12 hours.

4001. Which is that?—The Adder; three of them average about 13, the other 14.

4002. Those nine times the packet was too late for the mail, was the Adder one of those, or were they vessels of inferior quality?—No, the Adder was not.

4003. Was there any one which was oftener late than the other?—Yes, the Advice.

4004. Do you know how often she was late?—Six times.

4005. If you had had a vessel of proper power she would have been in time for the mail?—Certainly; even the Adder would have saved the mail in those nine cases.

4006. Then you think the present packets are not capable of performing the duty efficiently?—Certainly; those are the old class of vessels, and have been on

Mr. *J. Hammond.* the station 16 years, and steam-vessels have been much improved upon since that period.

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4008. And what power?—About 180 horses' power, and not to exceed nine feet draught of water in consequence of the river navigation.

4009. What average passage do you think a vessel of that size would be able to make between Milford and Waterford?—I think you may take the average to be between 10 and 11 hours.

4010. What is the distance?—One hundred and two miles from Hobb's Point to Waterford Quay.

4011. When you make St. Ann's Lights, have you any difficulty in getting into Milford or up to Hobb's Point?—Not the least.

4012. During the whole time you have been upon the station?—Yes.

4013. And at Waterford, is the navigation of Waterford river so intricate as to make you apprehensive of entering at night?—Certainly not in clear weather, but a fog would detain a vessel; if I can make the lights, I run up with confidence.

4014. If the time were so arranged that you would arrive at Waterford at night, should you have any apprehension in entering the harbour?—None whatever; I have frequently gone up on dark nights at low water.

4015. The only time you did not get the mail on board at Hobb's Point was when it was blowing hard, and when you would not have attempted a passage, if the mail had been on board?—Certainly not.

4016. You are not acquainted with the Bristol Channel?—No, I am not.

4017. What saving of time would be effected by putting on a better class of packets than the present; do you apprehend, if you had the class of vessels you have mentioned, you would be enabled to effect the passage regularly?—There would be a much greater degree of certainty.

4018. You would not recommend a larger class of vessels than 340 tons, and 180 horses' power?—I consider they would be large enough for that station, considering the navigation of Waterford river; the vessels should not exceed nine feet draught of water.

4019. *Chairman.*] Have you ever found the water less than 12 feet on the bar?—There is as little as nine feet.

4020. Lord *Emlyn.*] If any accident occurs to your vessels, are they repaired at the dock-yard?—The repairs are done at the dock-yard, with a few exceptions.

4021. *Chairman.*] Where do you get the coal you use?—We generally use the Scotch coal.

4022. Can you state any reason for that?—The Welsh coal has been tried, but it does not answer; I suppose the construction of our boilers may be the reason of its not answering as well as the Scotch.

4023. You attribute that to the construction of the boilers, not to the fault of the coal?—Certainly.

4024. Lord *Emlyn.*] It has been suggested to the Committee that packets from Bristol to Waterford should call at Dale Bay to pick up the mail. Do you know Dale Bay?—Yes.

4025. Do you think it would be practicable at all times to get the mail on board from Dale Roads?—I think it quite impracticable.

4026. What wind is Dale Bay exposed to?—South-easterly winds.

4027. Is that the prevalent wind?—Not very; south-west winds are more prevalent than south-east.

4028. Now what delay do you suppose it would occasion, calling at Milford or Dale Bay, in the passage from Bristol to Waterford?—Generally speaking, I should say it would occasion a delay of three hours at least.

4029. In bad weather?—Yes, or even in fine weather, because, coming down the Bristol Channel, you must vary your course considerably.

4030. There is no pier, or any accommodation for landing?—There is no landing-place whatever, and in a south-east wind it would be impossible to effect a landing.

4031. Even if there were a pier?—With a long pier you might.

4032. You do not know what the expense of a pier at Dale Bay would be?—I cannot say.

4033. Mr. *Morgan.*] What accommodation for passengers have you on board your

your packets?—We have 16 sleeping berths, which we find sufficient accommodation for the number of passengers that cross.

4034. Supposing you have an increased number of passengers, should you have accommodation for them?—Yes; we have accommodation for an increased number.

4035. Lord *Emlyn.*] What depth of water is there at Dale Bay?—Dale Bay is very shallow.

4036. A great part of it dries at low water?—Yes, it dries a long way out.

4037. It is not a very good roadstead in bad weather?—Very bad.

4038. Mr. *Vivian.*] Is there any ground swell in Dale Bay?—Yes; in south-west winds there is a heavy ground swell.

4039. Would there be any inconvenience in landing there from weeds or mud?—It is chiefly mud upon the bank.

4040. Mr. *Grogan.*] You stated a vessel of 340 tons burthen and 180 horses' power would be the largest which, in your opinion, would be suited to that station, inasmuch as a larger would not be able to enter Waterford at all times?—Yes.

4041. That is, in fact, owing to the shallowness of the water upon Waterford Bar?—Yes.

4042. What is the lowest depth of water you recollect to have found upon the bar?—Nine feet.

4043. Is it a frequent occurrence; does it occur once or twice a month?—At low-water spring tides.

4044. Of course a vessel starting at a given hour will occasionally come in at low water?—Yes.

4045. Then you conceive that a vessel starting from Brean Down, bound for Waterford Harbour, would be subject to greater difficulty and inconvenience than your vessels would?—Certainly.

4046. Consequently a large vessel should not at any time be put on from Brean Down any more than from Milford?—No.

4047. What are your best passages at present?—Taking the year round, I should say about 12 hours; that is to say, with the best vessel on the station.

4048. And you estimate from 10 to 11 hours would be a fair average with these improved vessels?—Yes.

4049. Consequently you would only gain one hour?—About an hour and a half.

4050. Lord *Emlyn.*] Some of your vessels average 12 hours and some 14?—Yes; and therefore the saving between the difference of the vessels would be 2½ hours.

4051. Mr. *Grogan.*] A question was put as to the accommodation your present vessels afford, and you answered there was full accommodation for the number of passengers that go upon that line, which is very small; do you imagine the reason of the paucity arises from the insufficient accommodation on board the vessels, or from the very long land journey through South Wales?—From the long land journey through South Wales.

4052. Consequently it is not from any want of accommodation on board the present vessels?—Certainly not.

4053. Mr. *Vivian.*] What is the passage-money from Milford to Waterford?—£. 1. is the cabin fare, and 10*s.* the deck fare.

4054. Mr. *Morgan.*] Have you any accommodation for carriages?—Yes.

4055. Do you think if there were an improved class of packets upon the station, you would have an increase of passengers?—I think not; it is the inconvenience of the long journey through South Wales which deters them.

4056. Mr. *Vivian.*] I suppose in Post-office communication, the first consideration is the conveyance of the mail?—Yes, the mail is everything.

4057. Lord *Emlyn.*] You attribute the failure of the mail on nine occasions out of 12 to the inefficiency of the packets?—Yes; no doubt about it.

4058. You stated, if the Adder had made the voyage those nine times, she would have saved the mails?—Yes.

4059. Mr. *Vivian.*] What do you consider would be the average passage from Milford to Waterford with an improved class of vessels?—About 10½ hours.

4060. And what margin would you allow for irregularities?—I can hardly judge, the weather is so uncertain.

4061. *Chairman.*] We have heard complaints that people who are well have had

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had nothing to eat on board these vessels; and there has been a difficulty in getting towels to wash with; is that so?—We are well supplied with cabin furniture; as to provisions, they are seldom called for.

4062. Mr. *Vivian.*] You said you could not use the Welsh coal, on account of the construction of your boilers?—I ascribe it to that, as the Welsh coal answers in many steam-vessels.

4063. With boilers so constructed that you could use the Welsh coal, would not there be a saving in the consumption of coal, and consequently in the annual charge?—There would be a saving in the consumption of coal.

4064. What is the contract price paid for the Scotch coal?—I believe it to be 16*s.* 9*d.* per ton at present.

4065. Do you know at what price the Welsh coal would be delivered?—I believe about 16*s.* per ton.

4066. Do you know the price at Swansea?—I do not. We have on several occasions tried the Welsh coal upon that station, but never to make it answer; it burns with a very strong flame which does not spread round the flues as the Scotch, which burns with a light flame, does.

4067. Is not the Welsh coal used upon other stations?—Upon many other stations.

4068. With advantage?—With advantage, I believe.

4069. Then if the consumption of coal could be reduced, and the coal obtained at a lower price than is paid at present, there would be a saving in the annual charge of the packets?—There would be a saving.

4070. Mr. *Morgan.*] How many packets have you now?—Five.

4071. Would four packets be sufficient if they were of an improved class?—Four have done the duty, but I think it desirable to have the fifth.

4072. *Chairman.*] Four efficient vessels would do it?—Yes; but last winter we had three disabled at the same time.

4073. Did that arise from the inferior quality of the vessels?—No; it was through unavoidable accidents.

4074. Mr. *Stanley.*] You always must be liable to accidents in the machinery?—Yes.

4075. Mr. *Morgan.*] Have you ever known that happen before, to have three disabled at once?—No.

4076. Have you known two disabled at once?—Yes.

4077. Mr. *Stanley.*] Do you always require to have one under repair?—Yes; to put in new boilers, to repair the boilers, or some parts of the machinery.

4078. Mr. *Vivian.*] You cannot say what margin for irregularities would be required from Milford to Waterford?—It is impossible to form a correct idea; but I should say, certainly, with an improved class, four hours in the summer, and six in the winter.

4079. The longer the sea voyage the greater the margin which will be required?—Yes; the greater the voyage the greater the uncertainty.

4080. Now, taking the passage from Brean Down to Waterford, do you consider that double the allowance should be made for irregularities as from Milford?—I do.

4081. What is the depth of water at Hobb's Point, alongside the pier?—There is 12 feet low-water spring tides alongside the pier.

4082. Is there anything you can point out at Hobb's Point, or within Milford Haven, which would render it more complete as a packet station?—No, certainly not.

4083. You consider Hobb's Point and Milford Haven as complete a packet station as can be made?—I should say Milford Haven is desirable for a packet station; and Hobb's Point answers every purpose for a mail communication.

4084. Mr. *Morgan.*] And there is every facility for landing and embarking the mail and passengers?—Yes.

4085. Mr. *Grogan.*] You mentioned you had been 10 years out of 20 commanding a packet on the Irish station; where were you the other 10?—I was commanding a Post-office sailing packet in the North Sea.

4086. At what hour is it dead low-water spring tides at Waterford?—At about half-past 11.

4087. And what would be the most convenient hour for a vessel to arrive at Waterford to prevent the possibility of being detained for want of water?—A vessel drawing nine feet of water would never be detained.

4088. But

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4088. But a vessel of greater draught of water arriving at five or six o'clock in the morning, would not be liable to be detained for want of water over the bar? —No, not arriving at five or six in the morning.

4089. *Chairman.*] Would there be any difficulty in getting up to Waterford Quay, besides the bar?—Not in clear weather.

4090. Taking all weathers?—The only difficulty would be fog.

4091. Is the river sufficiently lighted and buoyed off for vessels to go up at all times?—Yes.

4092. Lord *Emlyn.*] Is the departure of the mail-coach from Hobb's Point regulated by the arrival of the packet?—No; the mail starts at a fixed time.

4093. Mr. *Morgan.*] How many hours generally elapse between the arrival of the packet at Hobb's Point, and the departure of the mail?—Generally speaking about four hours.

4094. Mr. *Grogan.*] Does it ever happen that the mail-coach starts without the mail-bags from the packet?—It occurred last winter 12 times.

4095. Then four hours you conceive would be rather too large a margin with those improved boats, supposing the mail-coach to be regulated by the arrival of the boats?—I do not think it would be too much.

4096. You state that from your experience?—Yes; I should say that would be enough in the summer months.

4097. And taking the year round?—I should say four in the summer, and six in the winter.

4098. With an improved class of packets?—Yes.

4099. Consequently anything starting from Brean Down higher up the Channel, would require a larger margin?—Certainly.

4100. Mr. *Stanley.*] What would you average your rate of sailing in summer and winter with an improved class of vessels?—I should calculate upon 9 ½ miles an hour in the summer, and eight miles in the winter.

4101. *Chairman.*] That is taking your improved vessels to be of what power? —One hundred and eighty horses'.

4102. Do you think a vessel with more power would not go faster?—I do not think it necessary for them to be larger than the size I mentioned.

4103. Supposing them to be 250 horses' power?—In that case they must necessarily be longer, and we are rather confined for space at Waterford and Hobb's Point.

4104. You have said a certain margin would be required from Milford to Waterford, to ensure the mail arriving with regularity; I want to know whether you would require so large a margin with vessels of 250 horses' power, and 500 tons burthen, starting from Brean Down?—I think a vessel of 180 horses' power and 340 tons might be made to go as fast as one of 250 horses' power and 500 tons.

4105. Mr. *Miles.*] Do you think size has nothing to do with speed?—Not always.

4106. Not in rough weather?—No; I have known small vessels make their passage when larger boats from Bristol have remained at anchor in Milford Haven.

4107. Of the same rate of tonnage, and the same proportion of power?—The same proportion of power.

4108. *Chairman.*] What description of vessels from Bristol are you speaking of?—The trading boats.

4109. Have they not been laden?—They are not generally laden outward bound.

4110. Mr. *Stanley.*] Do you not consider a considerable length of keel to give you greater speed?—I do not think that tends to increase the speed much; they build them longer in the keel than formerly.

4111. Does the packet leave Hobb's Point upon the arrival of the mail-coach? —Immediately on the arrival of the mail-coach.

4112. At what hour does the packet generally leave Hobb's Point at present? —At 11 o'clock at night.

4113. And arrives at Waterford at what hour?—Arrives at Waterford, generally speaking, between 11 and 12 the next day.

4114. Suppose the mail to arrive at Hobb's Point at 10 o'clock in the evening, at what hour should you arrive in Waterford, with an improved class of packets? —There would be a difficulty, perhaps, in making the lights upon the Irish coast

Mr. J. Hammond. in the night, which difficulty we have not now, on account of approaching the land by daylight.

13 June 1842. 4115. Supposing the packet were to start at seven o'clock in the evening, about what time would you make the Irish coast?—We should make the lights upon the Irish coast, generally speaking, about three o'clock in the morning.

4116. Would that be an inconvenient hour to make the coast?—Certainly.

4117. Mr. *Morgan*.] What is the earliest hour it would be convenient to make the lights?—It varies with the season.

4118. Taking it in winter time?—I should say six in the morning.

4119. Do you frequently cross without any passengers?—Frequently.

4120. Can you judge whether there is any great quantity of letters from the size of the bag?—The bag is about the same size as I have known it since I have been on the station.

4121. You think there is no considerable quantity of letters, judging from the size?—No.

4122. Mr. *Vivian*.] From the time you make the lights, how long would it take the packet to get to Waterford Quay?—It must of course depend upon the clearness of the weather; but I should say, generally speaking, about three or four hours from the time of making the Hook Light.

4123. You have stated six o'clock would be the earliest hour desirable to make the land in winter; at what hour would you arrive at Waterford Quay in that case?—I should say about nine o'clock.

4124. That is three hours earlier than at present?—Yes.

Captain *J. N. Tayler*, called in; and further Examined.

Capt. J. N. Tayler. 4125. *Chairman*.] HAVE you visited Brean Down since you were last under examination?—Yes.

4126. Have you obtained any knowledge of the anchorage?—I have examined the anchorage, and the evidence I gave before was perfectly corroborated in every respect connected with the anchorage.

Chart not printed. 4127. Is that a chart of the anchorage?—That is a chart I have made of it. (*The same was put in.*)

4128. How was the wind when you were there?—The wind was blowing strong from the north-east, with squalls and lightning; there ought to have been considerably more sea in the bay, from the strength of the gale, than what I found there.

4129. How was the tide when you visited it?—I visited it at high and low water; at the ebb-tide there is not much sea, through the north-east wind; at the flood-tide there would be more sea, and ships with a weather tide ride with less strain on their moorings. I took a very old pilot and fisherman in the boat with me, and he stated that there was not half the sea with the wind at north-east as with the wind at north-west.

4130. To what point of the compass is it most exposed?—It is decidedly most exposed to the north-west winds; the space is more open for the sea to get up with the north-west than with the north-east wind.

4131. Although it is more open to the north-east?—No, it is not so much open to the north-east; there is not so much space for the sea to get up from the north-east as from the north-west, which is open to the Channel.

4132. Where would you place the breakwater?—I should place it in a line with the How Rock, running out north-east, making fast one end of the moorings to the rock.

4133. How many sections would it require to afford protection for eight or ten steamers?—Eleven sections would be abundant to afford protection to that number.

4134. What would 11 sections cost, if the anchors and moorings were found and laid down by the Government?—If the 11 moorings were found and laid down by the Government, the sections would be found at 650*l.* each; that is, about 7,000*l.*, and the sections would always realise about two-thirds of their value if taken to pieces.

4135. Supposing 11 were not enough, and you wanted to make a larger harbour, could it be added to afterwards, if required?—Certainly, it could be added to at any time; and the sections could be moved to any other position, without any loss of material.

4136. Would

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4136. Would you carry it out exactly in a straight line, or carry it out in a curve?—I would carry it out at right angles.

4137. Do you consider the anchorage good generally for the purpose?—I consider the anchorage remarkably good; there is no such anchorage, I consider, in the Bristol Channel, or none superior to it; it is a fine holding ground, being hard blue clay, and about four fathoms water.

4138. Are there any facilities for a landing-place there?—Yes, a landing-place might be made on either side of the river. A permanent landing-place might be made at Brean Down, as I stated before, at 5,000*l.*, and on the mud a landing-place might be made upon the plan I before stated.

4139. In either case sufficient to embark carriages and horses?—Yes, to embark carriages or horses; there is a beautiful spring of water rising from the rocks at Brean Down, and there is no doubt vessels would resort there for the purpose of taking in water, because there is no such water to be met with anywhere.

4140. Do you conceive it capable of being made a harbour of refuge as well as a packet station?—It might, by extending the sections.

4141. Can you make the sections of any materials?—I can make them of any material; it is so stated in the patent I have taken out. I have tried iron of various shapes, but abandoned them; I found that cylinders, to carry the weight of the requisite moorings, must be made so large that they would present too solid a resistance to the sea; they would sink in the water to their diameters, and would propagate a wave and form a breaker rather than subdue one by dividing its parts. An unbroken wave is an undulation, whilst a breaker is accompanied with a translation of a mass of fluid, and exerts extraordinary forces on solids opposed to their course. Breakers wash away piers and rocks, whilst an open breakwater, with its internal parts filled with water and free to yield to the impulse of a wave, would not encounter great resistance. I have tried an iron caisson of a diamond shape, surrounded by timber; it answered better than a cylinder; but I found none so effective as the system I have adopted. A cylinder must float horizontally; and if it was divided into compartments, and the water got into either end, it would be depressed, and the weight of the moorings would carry it down.

4142. How long do your moorings last?—When I was commanding the Ordinary at Devonport, we took up moorings which had been down 22 years; and I consider, from the anchorage at Brean Down being fine hard blue clay, the moorings would last considerably longer there. A breakwater is placed at right angles, similar to a ship's moorings, and therefore does not possess a rotary motion like a Trinity buoy, or a ship swinging at her anchors.

4143. Are you aware whether the company to whom you have made over your patent would afford any facility for the making of a harbour at Brean Down?—That would depend upon the locality of the place; the possessors of the land, I suppose, would promote the object. I apprehend if a harbour were made there it would open a general communication from that place to Wales, it being well situated for that purpose. There is no doubt vessels could be got under weigh at Brean Down at all times of the tide; and if steam-packets of the first class were used, they could call at the Mumbles and complete the voyage to Waterford with the accuracy of a mail-coach, if duly organised.

4144. Have you any reason to suppose, that in the event of Brean Down being selected as a packet station, the harbour might be made by private enterprise?—I have no doubt of it, because it would be a very lucrative concern; and the sum is so small that I should say capitalists would embark in it, and the contention would be who should have it.

4145. Mr. *Stanley.*] In what you have stated as to the effect of a floating breakwater, are you speaking from experience, or from theory?—From experience; from having tried it with large models united, making 22 feet.

4146. Is there any breakwater such as you have mentioned in existence?—I have the models in my possession at the company's office in Moorgate-street; we have four large models of that description of about seven feet in length, and three were fastened together, making 21 feet. We tried them in the presence of several persons; there was a very eminent engineer present, and he was quite surprised and delighted at the effect; while the sea was breaking upon it, the water to leeward of it was perfectly at rest, and chips of wood that were washed

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by at each side of it were brought into the eddy and adhered to the lee side of the breakwater.

4147. Where did you try it?—At Plymouth.

4148. In the open sea?—We tried it near the bridge, and in Hamoaze, which is the greatest sea we could try it in with our boats.

4149. Did you try it in a heavy sea?—Yes, in as heavy a sea as we could venture out in our boats to fasten it; that was my object. I beg to submit a drawing of a section of the breakwater, secured by its moorings. (*Produces the same.*)

4150. Is there any work now in progress of this sort?—It has been brought before the Chamber of Deputies in France, and there has been a gentleman over from France, relative to its being laid down at Havre, and at Algiers, and he is the bearer of a letter from a member of the Chamber of Deputies to me, apologising for having stated to the House that I would visit those places for the purpose of laying down the breakwater. This, of course, I could not object to, provided it met with the sanction of my own Government.

4151. Have the Admiralty ever expressed any opinion upon it?—Sir George Cockburn, Admiral Owen, and several other distinguished naval officers, are patrons of this national undertaking. I speak not from theory, but from having tried it; and I venture to stake my professional reputation and rank upon its utility.

4152. Mr. *Vivian.*] Has it been submitted to the Trinity Board?—Yes.

4153. Have they expressed any opinion upon it?—Individually, several members of the Trinity Board have approved of it. There has been an opinion expressed in the House of Commons, which of course I was not there to explain away, that it was moored similar to a Trinity buoy. Now there is no comparison between them, because a Trinity buoy possesses great friction from its rotary motion, which this does not, as it is moored at right angles, the same as a ship's moorings; and as a ship's moorings will last 22 years, it is evident there can be no rotary motion there.

4154. What is the length of the moorings?—That would depend upon the depth of soundings; it is secured with timber moorings, which will carry away its weight of iron, and therefore renders it more buoyant. A cylinder of iron must be made of so large a diameter, to bear the mooring-chains, that it will present so great a resistance to the sea that no moorings would hold it. My floating breakwater is open frame-work, filled with water, and it inclines to an angle, according to the force of the sea; and by receding to the action of a wave, the water to the leeward of it becomes the resisting medium. I really think, from the enterprise of the French nation, they will be likely to be the first to try this invention for the formation of harbours of refuge.

4155. I understood you to say that there is no work of this kind actually in progress?—No; they are waiting for the third reading of the Bill before Parliament.

4156. You stated in your last examination that a floating breakwater was applicable to the protection of the anchorage ground at the Mumbles?—Certainly, quite as applicable as to Brean Down; and if carried out to a sufficient extent, would afford ample protection.

4157. Have you any reason to alter that opinion, or anything to add to what you then stated?—I think a harbour formed at the Mumbles would be a great acquisition to the Bristol Channel, because it is a fine anchorage, well situated, and only requires a sufficient number of sections to render it a useful anchorage; vessels could be there at all times under the lee of the floating breakwater; and a harbour of refuge is very much wanted on that coast.

4158. Do you know what length of breakwater would be required at the Mumbles?—I have never looked at the Mumbles with a view of forming a harbour of refuge, and therefore I cannot state precisely the number of sections that would be required; a breakwater, of the same number of sections as at Brean Down, would afford similar protection to eight or nine vessels; the stone breakwater at Plymouth is a mile, and it is supposed to give protection to 300 vessels.

4159. Do you consider that the plan you propose for mooring the sections would be applicable to the Bristol Channel, where the tide rises 40 feet?—Yes; that is the great advantage of this plan over stone; it would be attended with enormous

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enormous expense to form a stone breakwater in such a situation, but you can make a floating breakwater.

4160. *Chairman.*] Do you think Brean Down would afford a fair place for testing the merits of this plan for harbours of refuge generally?—Yes; pilots and fishermen inform me that the sea breaks with terrific force upon the How Rock with north-west winds.

4161. Mr. *Miles.*] Was not your plan about to be tried at Brighton?—Yes; the late Government offered to supply anchors and moorings to try it at Brighton.

4162. *Chairman.*] From your having commanded in the Ordinary, do you think the Government have any stores they could spare which would be applicable to the purpose?—Yes, I think so; because they have spared chains for the use of the fishing port to the westward, and they have a number of anchors applicable for this purpose in store, that in all probability may not be made use of by men-of-war.

4163. What would be the expense of these 11 sections you speak of, in the event of Government not supplying the moorings?—The additional expense in that depth of water would be from 150*l.* to 200*l.* each; it would not be any loss to the country; the timber of the sections and the anchors will always realize a great portion of their value.

4164. What would be the length of each section?—Seventy-two feet.

4165. And the space between the sections?—At 50 feet.

4166. Mr. *Grogan.*] What was the reason that the projected experiment at Brighton was not put into practice?—From want of funds; a solicitor at Brighton came forward very handsomely to offer to pay the expense of passing the Bill through Parliament for Brighton; but circumstances subsequently took place which prevented it.

4167. Mr. *Corry.*] Would the old long shank anchors do for these moorings?—Yes; many old anchors which are now lying idle in the dock-yards would be applicable for this purpose, and they might be secured together if requisite; of course, if the duty were taken off the timber used in the construction of the breakwater, it would make that difference in the expense.

4168. *Chairman.*] When you visited Brean Down lately, how long did you take going down?—I reached Brean Down in five hours.

4169. Could the railroad be carried further than Weston-super-Mare?—Yes; the railroad now extends to Highbridge.

4170. What length of railway would it require from Weston-super-Mare to Brean Down?—About two miles if brought down on the western side of the river, and about half a mile further if carried to Brean Down for a permanent landing-place.

Captain *John Drew*, called in; and Examined.

Capt. *John Drew.*

4171. Mr. *Miles.*] ARE you Haven-master at Bristol?—I am haven-master and harbour-master.

4172. How long have you known the Bristol Channel?—Thirty years.

4173. Have you sounded any portion of it?—Frequently, from the Holms to Kingroad.

4174. Are you of opinion that it is a good channel for steamers?—Yes.

4175. Do you consider it sufficiently lighted and buoyed?—No. I think improvements might be made in it still.

4176. What improvements?—I should recommend a light to be put on the west part of the One Fathom Bank; and two buoys, one on the north-west patch of the English ground, and another on the north elbow of the English ground.

4177. Do vessels find any difficulty in navigating the Channel?—I have never known any.

4178. Do you know whether steamers navigate at all times of the tide?—As far as my knowledge goes, I should say yes.

4179. Do you consider there is any risk with an ordinary look out in navigating a steamer above the Nash Point?—No, not more than ordinary risk.

4180. Is not the course from the Holms to Kingroad nearly straight?—That depends upon the state of the tide.

4181. Do you know how many points of alteration there will be?—That would

Capt. *John Drew.* depend upon the state of the tide; but when I went down to Weston the other day, I think we altered a point or a point and a half.

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4183. Do you recollect the least soundings you had on that occasion?—A quarter less six.

4184. Do you know that the Great Western has arrived at Kingroad at night?—Yes.

4185. And in thick weather?—Yes, I should say so, taking the average weather.

4186. And at all times of tide?—Yes.

4187. Do you know whether she has ever had to wait for water?—She never has, to my knowledge.

4188. And I believe she has sailed at all times of tide?—She has.

4189. Do you know what water she draws?—Sixteen or 17 feet.

4190. Do you know all the packets sailing from Ireland?—Yes.

4191. Do you know what the reason is which makes them slow their engines coming up the Bristol Channel?—I should suppose the want of water in the River Avon.

4192. Then it has nothing to do with the navigation of the Bristol Channel?—Certainly not.

4193. Have you ever heard of any losses in the Bristol Channel?—I have heard of the loss of the Frolic, and of the City of Bristol.

4194. And how long have you known the Bristol Channel?—Thirty years; I have known other vessels lost, sailing vessels.

4195. Have you ever seen the plan for a pier at Portishead?—Yes.

4196. Do you think it likely to succeed?—Yes, I do.

4197. I suppose you are acquainted with that place?—Very well.

4198. Can steamers get away from Portishead-roads, supposing they are protected by that pier, at all times of the tide?—Yes, I should imagine they would; I do not know anything to prevent them.

4199. Do you know how wide the Channel is between Portishead and the Welsh ground at low water?—I should say from half a mile to three quarters of a mile.

4200. There would be plenty of width for steamers?—Yes.

4201. Have you ever heard of vessels arriving at Kingroad without pilots?—Certainly.

4202. As well as steamers?—Yes.

4203. Have there been several instances of vessels being driven up in the night without knowing where they were?—Yes, sometimes they have been driven to the Holms, and sometimes to Kingroad, without knowing where they were.

4204. In spring tides could not vessels always navigate in safety from the Holms to Kingroad?—Yes.

4205. Do you know anything of the Bristol steamers?—Yes.

4206. Are they fast vessels or fit to perform the passage to the South of Ireland?—They are not fast assuredly.

4207. Do they always suit the tide in the Bristol Channel?—Yes, they perform the passage, but they are intended to carry goods as well as passengers.

4208. Have you ever read Captain Denham's "Sailing Directions for the Bristol Channel"?—Yes.

4209. What is your opinion of them?—I think they are very good, but rather complicated.

4210. Has there been any survey since Captain Denham's?—Yes, Captain Beechey was sent there by the Admiralty in the African steamer, and ascertained the position of the north-west elbow of the English ground and the north elbow.

4211. Do you agree with Captain Beechey's report?—Yes, his attention was more particularly drawn to these two shoals upon the English ground, to see whether the sands were increased or had altered their position.

4212. Do you think there are more difficulties inside the Bristol Channel than there are beyond Milford?—The difficulty must be increased to a certain extent, so far as the shoals are concerned, but I never contemplated that there was any great difficulty in the Bristol Channel.

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4213. Are fogs thicker there, or more prevalent, than in other places?—Assuredly not.

4214. Are they thicker about the Holms than down by Milford?—No, they would be less so; the rapidity of the tide would make an alteration, I should imagine; I think where the tide runs very rapid, fogs would be less prevalent than where the rapidity of the tide is not so great.

4215. Do you know anything of the Admiralty yacht Firebrand striking on the Nash sand?—Yes; I recollect it perfectly well.

4216. Was there any occasion for that?—No; there was no branch Bristol pilot on board. If a Bristol pilot had been on board, it would not have happened.

4217. Are you in the habit of navigating the Bristol Channel?—I have not done so for the last five or six years; before that I was constantly passing up and down in my voyages to the West Indies.

4218. Lord *Emlyn.*] Were you in command of a vessel then?—I was 17 years in command of a sailing vessel.

4219. Mr. *Miles.*] You never found any difficulty in navigating the Bristol Channel with a sailing vessel?—I never found any difficulty with a pilot on board; I had invariably a pilot at Lundy Island.

4220. *Chairman.*] Does your situation of haven-master give you any knowledge of the trade of Bristol?—Not much; my attention is confined to the care of the pilots.

4221. Have you attended any meetings held at Bristol lately on this subject?—No.

4222. Do you conceive that having a southern line of communication to Ireland is of importance to Bristol, and would be a convenience to the public generally?—Yes, I should imagine it would be so.

4223. Do you know the draught of water of the Irish steamers?—I should imagine about 12 feet.

4224. What would be the draught of an iron steamer of 500 or 600 tons?—Seven or eight feet perhaps; I have not had an opportunity of judging, but that would be the opinion I should form.

4225. What would be her length?—That would depend entirely on her breadth; I should say 150 feet.

4226. Do you know Waterford Bar?—No, I never was there.

4227. Do you think such a vessel would be likely to take the ground where 15 feet is the least water?—Not if she drew seven or eight feet.

4228. Do you think a long vessel would be less likely to take the ground than a short one?—Assuredly a long vessel would be less likely to take the ground in shallow water.

4229. Will you be so good as to state why?—I should fancy a short vessel would be more liable to plunge or dip than a long vessel, as the following seas would support a long vessel.

4230. You know nothing about the trade between Bristol and Ireland?—Nothing.

4231. Do you know Brean Down?—I know the place itself, but I know nothing of its localities.

4232. You know its position?—I do.

4233. Supposing a harbour to be made there, do you conceive, from its position in the Bristol Channel, it would be easy of access at all times?—I conceive it would be with a breakwater there.

4234. Do you conceive it would be more approachable than Portishead?—It is further down the Channel, and next above the Holms.

4235. Mr. *Grogan.*] What is the fall of the tide at Portishead, where the harbour is proposed to be erected?—Forty-five feet in spring tides.

4236. Is that more than at Brean Down?—No; I think the fall at Brean Down would not be so great.

4237. Do you think a similar harbour to that which is projected at Portishead would answer for Brean Down?—I fancy not; it is more exposed to the wind.

4238. Mr. *Vivian.*] Do you conceive that the floating breakwater, as proposed by Captain Tayler, would answer at Brean Down?—I am not sufficiently acquainted with the place to be able to form an opinion.

Captain *John Allen*, called in; and Examined.

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4239. Mr. *Vivian.*] You have had the charge of the Nautilus steamer, I believe, on the Bristol and Cardiff station?—I have, for 10 years.

4240. Previous to your taking charge of the Nautilus, what station were you upon?—Between Bristol and Swansea.

4241. How many years were you on that station?—Fifteen years.

4242. Did you trade to any port on the Irish coast from Swansea?—I served my time on the station from Swansea to Waterford.

4243. Then you are well acquainted with both the Bristol and the Irish Channels?—I am well acquainted with the Bristol Channel.

4244. Are not all the ports on the Welsh coast in the Bristol Channel, tide harbours?—Yes.

4245. Now supposing that it was determined to make a landing-place on that coast, in deep water, accessible for steam-packets at all states of the tide, what place would you point out as the most eligible for that purpose?—I would recommend Bendrick Roads, on the Welsh coast, near Barry Island.

4246. Is there good anchorage ground in Bendrick Roads?—There is good anchorage ground there; I know of no better in the Channel, with the wind westerly.

4247. And deep water?—Deep water; we have good anchorage with the wind west and by south in four fathoms water, at low water.

4248. To what points of the compass is the anchorage ground exposed?—It is exposed to the south-west, or from south-west up to south-east.

4249. Would it require protection to make it a commodious place for steamers?—It would. It would require some protection to make it approachable at all times of the tide from the Bendrick Rock.

4250. What sort of protection would you recommend?—I should recommend a wooden jetty, extending out from 70 to 80 yards.

4251. In what direction?—West-south-west.

4252. Carried out straight?—Carried out straight upon piers for about 70 or 80 yards, and then to extend west and by north 40 or 50 yards.

4253. Mr. *Miles.*] The Nautilus is a small vessel?—Sixty horses' power; 100 feet long.

4254. Mr. *Vivian.*] To what number of steamers would a pier of the length you propose afford protection?—It would enclose a large surface of water, sufficient to moor six or eight steamers.

4255. *Chairman.*] Could you land at all times of tide there?—Yes.

4256. Mr. *Vivian.*] What description of pier do you propose; you say you would carry it out upon uprights?—I think the most commodious pier would be to make a stone jetty at the outer extremity of the pier, and from thence to the main with woodwork on each side to the water's edge at low water, so as to allow a current to run underneath.

4257. What height does the tide rise in Bendrick Roads?—It rises full 40 feet.

4258. Would it not be inconvenient to erect a jetty of the height of 60 feet, as would be required, allowing for the depth of water at low water, and the height of the jetty above the highest tide?—Those piers might be driven at low water, and scarfed so as to lengthen them, without driving them in all of one length.

4259. Mr. *Corry.*] Do you mean the whole pier to be a wooden pier?—Yes; it would not do to make a stone pier, it would stop the current of the tides in the Bristol Channel, and form a sediment which would fill up in course of time.

4260. Mr. *Vivian.*] Then the lower part would be open for the tide to pass through?—Yes.

4261. Mr. *Corry.*] Would it not be open to the action of the sea?—No, we should board it to the water's edge.

4262. Do you think a pier so constructed would be strong enough to resist the action of the sea?—No doubt of it; there is no great drift when exposed to southerly winds, as it is well sheltered from the westerly winds by Barry Island.

4263. Mr. *Vivian.*] Is the anchorage ground in Bendrick Roads protected from the strength of the tide?—Yes, both by Sully Island on the ebb, and Barry on the flood.

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4264. Do you not think a cheaper landing-place might be made by a sloping pier?—It might if you did not require a shelter at high water for vessels, as of course a pier made above water would shelter vessels from the sea at all times; a slip would be much the cheaper.

4265. Could not a buoy be placed at the entrance of the slip for mooring?—Yes; and there is a good holding ground to put down buoys anywhere, so as to form convenient moorings.

4266. Is there any landing-place at the mouth of the Cardiff river?—There is no landing-place at low water.

4267. What is the distance from the entrance to the Bute Docks to low-water mark?—A mile and a half.

4268. Could a jetty be constructed over the mud?—There is not the least doubt it could, unless there will be any objection to it in stopping the navigation of the River Taafe.

4269. Would it be in the way of vessels beating to windward?—It would.

4270. Could a sloping pier be run down to low-water mark at the mouth of the Taafe?—No, not at all.

4271. Would it be liable to be covered with mud, supposing such pier were constructed?—It would be liable to be covered with mud, and it would be an obstruction to the river Taafe, to vessels running in and out; it must be carried a long way out, because the water is very shallow to the eastward of Penarth Head.

4272. Could a landing-place be constructed at Penarth, and would any considerable length of jetty be required?—It would take a long length. I do not think it is a convenient place at all for landing or embarking; it is very shallow water. It is also awkward in the navigation of boats by night, between the Cardiff grounds and Larnack Point.

4273. What is the distance from Penarth to Cardiff by land?—Along the turnpike-road it is seven miles.

4274. What is the distance from Bendrick or Barry Island to Cardiff?—About nine miles.

4275. Is there a good road?—A very good road.

4276. What is the distance from Barry Island to Cowbridge, where the road joins the turnpike-road, to go to the westward?—I think we could join the road to Cowbridge, to go to the westward, in about eight miles from Bendrick Roads.

4277. Is there a good road from Barry Island to the westward?—Not at present.

4278. Then a new road would be required to be constructed?—A new road would be required to be constructed for the mails.

4279. What is the distance across from Barry Island to Brean Down?—About 11 miles.

4280. Is it an open channel?—Yes, quite an open channel.

4281. Does the tide run strong in the channel?—At spring tides, about five knots an hour.

4282. And you would have to cross the run of the tides on the passage?—Yes.

4283. Mr. *Corry*.] Do you consider it a much safer passage at night from How Rock to Barry Island than from How Rock to Penarth Head?—There is no landing at Penarth Head.

4284. Supposing a landing-place were made there?—I should prefer Barry Island, on account of the Cardiff grounds.

4285. *Chairman*.] Do you think a vessel could go across at all times, night or day, with safety?—I have not the least doubt of it.

4286. What length of time would you give to proper sized vessels to perform the voyage?—Anything of a steam-boat ought to do it at all times in an hour and a half.

4287. From your knowledge of the country, do you think it would be a general convenience?—I think it would be a very great convenience.

4288. Do you think it would be a convenience to the Welsh people to get to London by means of the Great Western Railway?—I think it would be the greatest facility they could get.

4289. Would many go from Wales to the West of England that way?—Yes; we take a great many now who are going to the west of England.

4290. You would allow about an hour and a half for the passage?—Yes.

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4290*. That is the average passage; you would do it in an hour, I suppose?—I should say we should never exceed an hour and a half.

4291. Mr. *Vivian.*] Then, suppose the packet were to leave Brean Down at three o'clock in the morning, it would arrive at Barry Island at half-past four?—Yes.

4292. At what time would it arrive in Cowbridge, assuming there was a good road?—In an hour and a quarter from the time of landing at Barry Island.

4293. Then it would arrive at Cowbridge at three quarters past five?—Yes; from half-past five to six.

4294. And from Cowbridge to Swansea it would take about three and a half hours?—Yes.

4295. Then it would arrive at Swansea at nine o'clock?—Yes.

4296. And at Hobb's Point about four o'clock in the afternoon?—Yes.

4297. What would you allow for the passage from Hobb's Point to Waterford?—About 10 hours.

4298. What margin would you allow for irregularities?—I think the boats would scarcely ever exceed 10 hours.

4299. Then a packet would arrive at Waterford at two in the morning, if it left Hobb's Point at four in the afternoon, or in 23 hours from the time of the departure of the packet from Brean Down to Bendrick?—Yes.

4300. Now, supposing packets were to go direct from Brean Down to Waterford, how would the Welsh letters be conveyed to Brean Down to meet the steamer; could they be conveyed to Brean Down instead of by the direct route to Hobb's Point, without causing considerable delay?—I do not know any nearer way than to have a packet across from Bendrick Roads to Brean Down, unless they got to Bristol; there is no other way.

4301. Would not the letters from Swansea for Ireland arrive at Hobb's Point as soon as they would arrive at Brean Down?—I think they would arrive soonest at Brean Down, provided there was a communication opened direct.

4302. And from Hobb's Point they would have a passage of only 90 miles to perform, instead of having a passage of double the length, from Brean Down to Waterford?—Yes.

4303. Do you consider that the passage from Brean Down to Barry Island could be effected with the same regularity as the passage of the Severn at the Aust Ferry?—I do.

4304. The one is 11 miles of open sea, and the other 1½ mile, high up the Channel?—The navigation across the Severn at present is very awkward, on account of the inferior accommodation, and also the strong currents.

4305. But supposing the Old Passage were improved with commodious piers run down to low-water mark, so that a steamer could cross at any state of the tide; should you then consider it would be a safe passage, and a passage which could be effected at all hours of the night?—It might, provided they built new piers, and a more powerful boat.

4306. Then you consider that, supposing those improvements were made, it would be a preferable passage for the mail communication with Bristol and London, than that from Brean Down to Barry Island?—The distance across the Severn would be considerably less; but if I had the option of working the two stations I would prefer Brean Down.

4307. Supposing the London mail was conveyed across from Brean Down to Barry Island, the towns of Cardiff and Newport, and all to the eastward of Cardiff, would be left out?—They would; the only way would be to have a branch mail from Barry.

4308. *Chairman.*] Do you think that if mail-packets were established from Brean Down to Barry Island, there would be sufficient traffic to cause her to run oftener than the times at which she would carry the mails, so as to make her pay?—I think there would be sufficient traffic to make a trip or two a day across, besides the times she would carry the mails. There would be a very great communication, both with the West of England, and also London, from that part of Wales.

4309. Do you think that vessels of this kind could be made to pay if a harbour were constructed?—I have not the least doubt of it.

4310. You would think it a preferable passage for the public convenience than the improvement of the Aust Ferry?—I should think it quite as well, on account of the strong tides on both sides, both on the ebb and flood.

4311. Do

Capt. *John Allen.*

13 June 1842.

4311. Do you take into account the facility of getting upon the railway at Weston-super-Mare?—Yes.

4312. You would save a great deal of travelling by coach by getting upon the railway at Weston-super-Mare, instead of having to go by the road?—It would save a great deal of time, and coach travelling.

4313. And you would save a great deal more if you were going from Wales to the West of England?—Yes.

4314. Then it would be a convenience to those going eastward and westward to get across there?—Quite so.

4315. Mr. *Vivian.*] Supposing you were master of a coasting vessel trading with Ireland and that you were in one of the ports on the Welsh coast, and wished to communicate with your owners in Ireland, as to the description of coal which you were to load or any other subject, might not a delay of 48 hours or even 24 hours in the transmission of your letters, occasion considerable inconvenience and loss?—Very great; I have known a letter not come to hand until after a detention of 12 hours, which has caused a vessel to be neaped and to lose the springs.

4316. Coal being a low-priced article, does not everything depend on dispatch?—Entirely.

4317. Was not the object in reducing the postage to 1*d.* to facilitate communication through the country?—So I always understood.

4318. And would not that object be defeated if post communications were to be suppressed, because at the reduced rate of postage it was found that the office did not cover its expenses?—Undoubtedly.

4319. Would not a considerable injury be done to the shipping interests and to the commercial interests of South Wales, in their communication with Ireland, if the southern line of communication with that country were done away with?—Very great injury, I should think, to all the commercial interests of South Wales.

4320. It appears by the official returns that nearly 4,000 vessels cleared out for Ireland in the last year from ports in South Wales and Monmouthshire; now, is it possible that the Milford station could be suppressed without doing very great injury to the commercial interests of those ports?—I think every commercial man in South Wales would feel it to be a great injury.

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Appendix, No. 1.

PORTPATRICK PACKET STATION.

A RETURN of the HOURS at which Her Majesty's MAIL STEAM PACKETS have left *Portpatrick* and *Donaghadee* respectively, in 1841; the Number of Hours occupied in the Passage, specifying the Days on which the Mail has been detained beyond the Fixed Time, the Length of Detention, and the Cause thereof.

DATE.	TIME LEFT		Number of Hours on Passage		Mail detained beyond Fixed Time, Length of Detention, and Cause thereof.			
	Portpatrick.	Donaghadee.	To Donaghadee.	To Portpatrick.	At Portpatrick.		At Donaghadee.	
1841:	H. M.	H. M.	H. M.	H. M.	H. M.		H. M.	
January 1	7 43 a.m.	11 45 a.m.	3 0	2 40	1 43	waiting for London mail	0 15	late coach.
— 2	6 45 –	11 58 –	2 38	2 30	0 45		0 28	
— 3	no communication either way this date			- - -	24 0	stormy, N.E. gales	24 0	stormy, N.E. gales.
— 4	8 5 a.m.	detained -	2 35	- nil. -	2 20	- - -	24 0	
* — † 5	8 0 –	8 0 – 2 3 –	2 35	3 50 4 53	2 15	- - -	2 35	late coach, ditto.
* — 6	8 0 –	11 20 p.m.	2 30	2 50	2 15	- - -	0 50	
— 7	7 55 –	0 50 –	2 50	2 20	2 10	- - -	1 20	
— 8	7 55 –	1 15 –	3 20	2 30	2 10	- - -	1 45	
— 9	7 35 –	0 39 –	2 45	2 53	1 50	- - -	1 9	
— 10	8 28 –	0 57 –	2 47	2 38	2 43	13 m. for want	1 27	
* — 11	9 10 –	0 45 –	2 35	3 0	3 25	of water out	1 15	
* — 12	8 10 –	1 15 –	2 35	2 20	2 25	waiting for London mail -	1 45	
* — 13	8 0 –	1 45 –	2 40	2 40	2 15		2 15	
* — 14	8 0 –	1 26 –	2 22	2 40	2 15	- - -	1 56	
* — 15	8 0 –	1 20 –	2 25	3 0	2 15	- - -	1 50	
* — 16	8 0 –	0 30 –	3 15	3 0	2 15	- - -	1 0	
— 17	8 45 –	1 7 –	3 8	2 43	3 0	stormy -	1 37	
* — 18	8 2 –	0 20 –	2 38	2 45	2 17	- - -	0 50	
— 19	6 58 –	1 10 –	2 27	3 0	1 13	- - -	1 40	
— 20	8 30 –	0 23 –	2 45	2 45	2 45	- - ditto, & accident to boilers	0 55	
— 21	6 45 –	0 37 –	3 30	2 25	1 0	- - -	1 7	
— 22	6 55 –	0 8 –	4 55	2 24	1 5	- - -	0 38	
— 23	7 20 –	0 57 –	4 30	4 19	1 35	- - -	1 27	
— 24	8 35 –	0 55 –	3 5	3 20	2 50	stormy -	1 25	
— 25	8 20 –	0 45 –	2 45	2 30	2 35	- - -	1 15	
— 26	8 50 –	0 50 –	3 0	2 25	3 5	- - 1 h. 40 min. of which want of water out.	1 20	waiting for Dublin mail.
— 27	7 3 –	0 15 –	3 12	2 30	1 18	- - -	0 45	
— 28	7 35 –	1 4 –	2 15	2 31	1 50	- - -	1 34	
— 29	7 5 –	0 40 –	2 25	2 25	1 20	- - -	1 10	
— 30	6 37 –	0 38 –	2 33	2 37	0 52	- - -	1 8	
— 31	6 45 –	1 10 –	2 25	2 35	1 0	- - -	1 40	
February 1	7 38 –	0 35 –	2 32	3 0	1 53	waiting for London mail -	1 5	
— 2	6 15 –	0 55 –	2 35	4 10	0 30		1 25	
— 3	8 7 –	1 57 –	2 33	3 53	2 22	- - -	2 27	
— 4	6 48 –	4 6 –	2 27	4 19	1 3	- - -	4 6	snow squalls.
— 5	6 32 –	3 5 –	2 20	6 5	0 47	- - -	3 35	
— 6	6 50 –	3 3 –	2 40	5 4	1 5	0 10 of which in want of water over the bar -	3 33	
— 7	7 50 –	2 50 –	2 25	5 8	2 5	1 20	3 20	
— 8	8 20 –	1 37 –	2 30	4 33	2 35	1 20	2 7	
— 9	6 25 –	1 46 –	2 28	2 27	0 40	- - -	2 16	
— 10	7 47 –	1 35 –	2 38	3 48	2 2	snowdrift -	2 5	
— 11	6 40 –	1 35 –	3 5	4 25	0 55	- - -	2 5	
— 12	8 25 –	1 25 –	2 30	2 30	2 40	- - -	1 55	
— 13	7 5 –	1 20 –	3 50	2 55	1 20	- - -	1 50	
— 14	6 57 –	1 50 –	3 8	2 30	1 12	- - -	2 20	
— 15	7 3 –	1 25 –	3 24	2 37	1 18	- - -	1 55	

* London mail arrived after packet had sailed, letters detained at Portpatrick until the following day.

† Two packets arrived with three mails.

0.43. K K 3. (*continued*)

DATE.	TIME LEFT		Number of Hours on Passage		Mail detained beyond Fixed Time; Length of Detention, and Cause thereof.			
	Portpatrick.	Donaghadee.	To Donaghadee.	To Portpatrick.	At Portpatrick.		At Donaghadee.	
	H. M.	H. M.	H. M.	H. M.	H. M.		H. M.	
1841: February 16	7 2 a.m.	1 42 p.m.	2 38	2 38	1 17	waiting for London mail	2 12	waiting for Dublin mail.
— 17	7 7 -	3 26 -	2 20	2 24	1 22		3 56	
— 18	7 35 -	2 30 -	4 40	2 32	1 50		3 0	
— 19	7 30 -	2 15 -	3 0	2 15	1 45		2 45	
— 20	7 25 -	2 30 -	3 5	2 20	1 40		3 0	
— 21	6 55 -	1 35 -	2 35	2 35	1 10		2 5	
— 22	7 40 -	1 35 -	3 15	2 30	1 55	1 h. 40 m. want of water to go out.	2 5	
— 23	8 15 -	1 53 -	2 35	2 20	2 30		2 23	
— 24	7 25 -	2 20 -	2 37	2 35	1 40		2 50	
— 25	6 40 -	2 15 -	2 40	2 30	0 55		2 45	
— 26	6 35 -	2 15 -	3 10	3 10	0 50	- - -	2 45	
— 27	6 55 -	1 46 -	2 45	2 49	1 10	- - -	2 16	
— 28	7 35 -	2 9 -	2 30	2 25	1 50	- - -	2 39	
March - 1	7 51 -	1 47 -	2 41	2 43	2 6	- - -	2 17	
— 2	6 15 -	1 52 -	3 47	2 38	0 30	- - -	2 22	
— 3	6 50 -	1 57 -	2 48	3 38	1 5	- - -	2 27	
— 4	6 10 -	1 40 -	2 40	2 30	0 25	- - -	2 10	
— 5	6 24 -	1 45 -	3 86	2 30	0 39	- - -	2 15	
— 6	6 30 -	1 42 -	3 4	2 16	0 45	- - -	2 12	
— 7	6 30 -	1 37 -	4 0	2 23	0 45	- - -	2 7	
— 8	6 35 -	1 16 -	2 45	2 22	0 50	London mail late coach.	1 46	
— 9	6 50 -	1 32 -	2 40	2 23	1 5		2 2	
— 10	6 8 -	0 45 -	2 37	2 35	0 23		1 15	
— 11	6 27 -	1 20 -	2 48	2 24	0 42	- - -	1 50	
— 12	6 20 -	1 11 -	2 30	2 29	0 35	- - -	1 41	waiting the arrival of Dublin & Belfast mail.
— 13	6 30 -	1 13 -	2 27	2 27	0 45	- - -	1 43	
— 14	7 5 -	1 10 -	2 30	2 40	1 20	- - -	1 40	
— 15	6 52 -	11 55 a.m.	2 43	2 35	1 7	- - -	0 25	
— 16	6 10 -	0 20 p.m.	2 35	2 20	0 25	- - -	0 50	
— 17	6 30 -	1 5 -	3 20	2 30	0 45	- - -	1 35	
— 18	6 21 -	0 40 -	2 39	3 5	0 36	- - -	1 10	
— 19	6 35 -	0 35 -	4 20	2 35	0 50	- - -	1 5	
— 20	6 45 -	0 45 -	2 40	2 30	1 0	- - -	1 15	
— 21	6 45 -	0 20 -	3 40	3 5	1 0	- - -	0 50	
— 22	7 0 -	0 40 -	2 43	2 28	1 15	- - -	1 10	
— 23	6 33 -	0 40 -	4 17	2 35	0 48	- - -	1 10	
— 24	7 40 -	0 31 -	3 15	2 29	1 55	H. M. 1 10 of which waiting water over the bar.	1 1	
— 25	8 12 -	0 17 -	2 50	2 43	2 27	0 57	0 47	
— 26	6 25 -	0 28 -	2 30	2 30	0 40	- - -	0 58	
— 27	6 25 -	11 53 a.m.	3 1	2 34	0 40	- - -	0 23	
— 28	6 35 -	0 40 p.m.	2 45	2 45	0 50	- - -	1 10	
— 29	6 28 -	0 12 -	2 32	2 48	0 43	- - -	0 42	
— 30	6 25 -	0 26 -	3 40	2 29	0 40	- - -	0 56	
— 31	2 37 p.m.	6 40 -	4 3	3 10	8 52	late coach, and strong w. gales.	7 10	ditto, and waiting conveyance.
April - 1	6 25 a.m.	0 10 -	2 50	2 23	0 40	- - -	0 40	
— 2	7 2 -	0 12 -	3 13	2 32	1 17	- - -	0 42	
— 3	6 10 -	0 3 -	3 2	2 27	0 25	- - -	0 33	
— 4	8 14 -	0 5 -	3 31	2 40	2 29	ditto, coach broke down.	0 35	
— 5	6 23 -	11 47 a.m.	2 34	2 43	0 38	- - -	0 17	
— 6	7 10 -	11 55 -	3 20	2 35	1 25	ditto, wanting water out.	0 25	
— 7	6 21 -	11 57 -	2 49	2 31	0 36	- - -	0 27	
— 8	5 42 -	11 48 -	4 48	2 39	- -	time - -	0 18	
— 9	5 58 -	11 46 -	2 35	2 27	0 13	late coach -	0 16	
— 10	6 3 -	11 50 -	2 32	2 35	0 18		0 20	
— 11	5 45 -	11 45 -	2 30	2 35	- -	time - -	0 15	waiting mail-coach arrival.
— 12	5 40 -	11 37 -	2 28	2 28	- -		0 7	
— 13	5 38 -	11 40 -	3 3	2 40	- -		0 10	
— 14	5 40 -	11 36 -	3 10	2 42	- -		0 6	
— 15	5 44 -	11 37 -	3 11	2 26	- -		0 7	
— 16	5 45 -	11 35 -	3 10	2 30	- -		0 5	
— 17	5 40 -	11 40 -	2 35	2 25	- -		0 10	
— 18	5 48 -	11 35 -	3 50	2 25	0 3	waiting London mail - -	0 5	
— 19	6 19 -	11 37 -	3 39	2 20	0 34		0 7	
— 20	5 40 -	11 35 -	3 2	2 35	-	- - -	0 5	
— 21	6 55 -	11 50 -	2 35	2 44	1 10	55 min. wanting water out.	0 20	
— 22	5 52 -	11 37 -	2 23	2 23	0 7	waiting London mail - -	0 7	
— 23	6 0 -	11 43 -	2 44	2 30	0 15		0 13	

DATE.	TIME LEFT		Number of Hours on Passage		Mail detained beyond Fixed Time; Length of Detention, and Cause thereof.		
	Portpatrick.	Donaghadee.	To Donaghadee.	To Portpatrick.	At Portpatrick.	At Donaghadee.	
1841:	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	
April 24	6 9 a.m.	11 45 a.m.	2 26	5 0	0 24 late coach - -	0 15	waiting London mail.
— 25	5 32 –	11 39 –	2 58	3 29	- - - - -	0 9	
— 26	6 35 –	11 45 –	3 20	2 36	0 50 waiting London mail	0 15	
— 27	6 37 –	0 15 p.m.	3 48	2 35	0 52	0 45	
— 28	5 48 –	0 19 –	2 22	2 31	0 3	0 49	
— 29	6 2 –	0 2 –	2 36	3 3	0 17	0 32	
— 30	5 33 –	11 47 a.m.	2 32	2 33	- - - - -	0 17	
May 1	5 28 –	11 42 –	2 48	2 30	- - - - -	0 12	
— 2	5 32 –	11 35 –	2 44	2 47	- - - - -	0 5	
— 3	5 15 –	11 18 –	2 43	2 40	- - - - -	Time.	
— 4	6 5 –	0 12 p.m.	2 32	3 15	0 20 late coach - -	0 42	waiting the arrival of the Dublin and Belfast mail.
— 5	6 17 –	0 26 –	2 53	2 44	0 32 ditto, 10 m. waiting for water.	0 56	
— 6	6 50 –	11 50 a.m.	3 0	2 45	1 5 waiting water ont	0 20	
— 7	7 35 –	11 50 –	2 47	2 47	1 50 - - - -	0 20	
— 8	5 28 –	11 38 –	2 37	2 37	- - - - -	0 8	
— 9	6 35 –	11 36 –	2 45	2 27	- - - - -	0 5	
— 10	6 26 –	11 55 –	3 36	2 45	0 41 late coach - -	0 25	
— 11	5 31 –	11 57 –	3 47	2 36	- - - - -	0 27	
— 12	5 25 –	- noon -	2 58	2 45	- - - - -	0 30	
— 13	5 55 –	11 57 a.m.	2 37	2 41	0 10 late coach - -	0 27	
— 14	5 30 –	11 36 –	2 35	2 22	- - - - -	0 6	
— 15	5 36 –	0 18 p.m.	2 37	2 32	- - - - -	0 48	
— 16	5 55 –	11 58 a.m.	3 13	2 34	0 10 late coach - -	0 28	
— 17	5 45 –	11 45 –	3 48	2 25	- - - - -	0 15	
— 18	5 32 –	11 58 –	3 53	2 45	- - - - -	0 28	
— 19	6 5 –	0 13 p.m.	2 40	2 42	0 20 late coach	0 43	
— 20	5 50 –	11 35 a.m.	3 23	2 41	0 5	0 5	
— 21	6 35 –	0 10 p.m.	3 6	2 35	0 50 waiting water out	0 40	
— 22	8 0 –	0 13 –	2 30	2 32	2 15 late coach and ditto	0 43	
— 23	5 55 –	0 12 –	2 40	2 33	0 10 ditto - - -	0 42	
— 24	5 38 –	0 4 –	2 29	2 26	- - - - -	0 34	
— 25	5 43 –	0 9 –	2 29	2 29	- - - - -	0 39	
— 26	5 45 –	11 55 a.m.	2 38	3 5	- - - - -	0 25	
— 27	5 42 –	- noon -	2 33	2 53	- - - - -	0 30	
— 28	6 6 –	11 65 a.m.	3 6	2 28	0 21 late coach	0 25	
— 29	5 46 –	11 46 –	3 2	2 27	0 1	0 16	
— 30	5 45 –	11 55 –	2 33	2 20	- - - - -	0 25	
— 31	6 17 –	11 50 –	2 26	2 15	0 32 late coach - -	0 20	
June 1	5 50 –	- noon -	2 32	2 20	0 6 late coach - -	0 30	
— 2	5 46 –	11 53 a.m.	3 0	2 27	- - - - -	0 23	
— 3	6 7 –	11 32 –	2 28	2 28	0 22 late coach - -	0 2	
— 4	5 35 –	11 52 –	3 10	2 25	- - - - -	0 22	
— 5	5 51 –	11 56 –	3 9	2 32	0 6 late coach	0 26	
— 6	5 48 –	- noon -	2 40	2 43	0 3	0 30	
— 7	6 15 –	11 43 a.m.	2 30	2 39	0 30	0 13	
— 8	5 30 –	- noon -	2 32	2 30	- - - - -	0 30	
— 9	6 23 –	0 3 p.m.	2 25	2 30	0 38 waiting the London mail	0 33	
— 10	6 4 –	0 3 –	2 28	3 0	0 19	0 33	
— 11	5 49 –	0 7 –	2 41	3 10	0 4	0 37	
— 12	5 58 –	0 11 –	2 37	3 9	0 13	0 41	
— 13	6 0 –	0 1 –	2 40	2 49	0 15	0 31	
— 14	5 37 –	0 1 –	2 35	2 34	- - - - -	0 31	
— 15	5 40 –	- noon -	2 40	2 45	- - - - -	0 30	
— 16	5 58 –	0 28 p.m.	2 28	2 22	0 13 late coach - -	0 58	
— 17	5 40 –	0 2 –	2 45	2 28	- - - - -	0 32	
— 18	5 40 –	11 58 a.m.	2 40	2 40	- - - - -	0 28	
— 19	6 27 –	11 55 –	2 33	2 25	0 22 late coach and waiting water.	0 25	
— 20	5 59 –	11 56 –	2 31	2 69	0 14 late coach	0 26	
— 21	6 13 –	11 50 –	2 50	2 45	0 28	0 20	
— 22	5 43 –	0 9 p.m.	3 22	2 31	- - - - -	0 39	
— 23	5 52 –	0 3 –	2 40	2 27	0 7 late coach - -	0 33	
— 24	5 20 –	11 40 a.m.	2 40	2 32	- - - - -	0 10	
— 25	5 44 –	11 53 –	2 36	5 22	- - - - -	0 23	late coach.
— 26	5 40 –	11 55 –	2 55	2 42	- - - - -	0 25	
— 27	5 30 –	11 38 –	2 42	2 30	- - - - -	0 8	
— 28	5 28 –	11 36 –	3 17	2 31	- - - - -	0 6	
— 29	6 35 –	11 46 –	2 35	2 30	- - - - -	0 15	
— 30	5 56 –	11 42 –	2 54	2 28	0 11 late coach - -	0 12	

(*continued*)

DATE.	TIME LEFT		Number of Hours on Passage		Mail detained beyond Fixed Time; Length of Detention, and Cause thereof.	
	Portpatrick.	Donaghadee.	To Donaghadee.	To Portpatrick.	At Portpatrick.	At Donaghadee.
1841:	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
July 1	6 0 a.m.	11 50 a.m.	3 3	2 35	0 15 late coach - -	0 20 late coach.
— 2	5 52 –	11 42 –	2 33	2 33	0 7 waiting water out	0 12
— 3	6 0 –	11 42 –	2 40	2 33	0 15 late coach - -	0 12
— 4	5 57 –	11 49 –	2 45	2 31	0 12	0 19
— 5	5 52 –	11 28 –	2 32	2 32	- - - - -	time.
— 6	5 42 –	11 42 –	2 50	2 35	- - - - -	0 12 waiting the arrival of the Dublin and Belfast mail.
— 7	5 35 –	0 20 p.m.	2 55	3 10	- - - - -	0 50
— 8-15	Mails carried by sailing smacks; steamers under repair.				- - - - -	nil.
— 16	6 7 a.m.	0 2 p.m.	2 31	2 33	0 22 late coach - -	0 32
— 17	6 0 –	0 13 –	2 30	2 29	0 15	0 43
— 18	6 27 –	11 51 a.m.	2 33	2 29	0 42 waiting water out	0 21
— 19	5 13 –	11 50 –	2 32	2 30	- - - - -	0 20
— 20	5 54 –	- noon -	2 36	3 26	0 9 late coach - -	0 30
— 21	6 4 –	0 2 p.m.	2 44	2 39	0 19	0 32
— 22	5 52 –	0 6 –	2 58	2 59	0 7	0 36
— 23	5 34 –	11 50 a.m.	2 44	2 45	- - - - -	0 20
— 24	5 33 –	0 2 p.m.	2 42	2 50	- - - - -	0 32
— 25	5 32 –	11 57 a.m.	2 38	2 38	- - - - -	0 27
— 26	5 22 –	11 52 –	2 31	2 28	- - - - -	0 22
— 27	5 40 –	11 50 –	3 0	2 25	- - - - -	0 20
— 28	5 50 –	- noon -	3 30	2 40	0 5 late coach - -	0 30
— 29	5 45 –	- noon -	3 45	2 50	- - - - -	0 30
— 30	5 35 –	11 50 a.m.	3 3	2 40	- - - - -	0 20
— 31	5 50 –	11 50 –	3 2	2 45	0 5 late coach - -	0 20
August 1	6 35 –	0 10 p.m.	2 50	2 40	0 50 waiting water out	0 40
— 2	5 50 –	11 51 a.m.	2 35	2 31	0 5 late coach - -	0 21
— 3	5 40 –	11 59 –	3 8	2 31	- - - - -	0 29
— 4	5 42 –	11 50 –	2 30	2 30	- - - - -	0 20
— 5	5 55 –	11 50 –	3 0	2 52	0 10 late coach - -	0 20
— 6	5 40 –	11 46 –	3 40	2 23	- - - - -	0 16
— 7	5 37 –	11 50 –	2 53	2 30	- - - - -	0 20
— 8	5 53 –	11 47 –	2 42	2 30	0 8 late coach - -	0 17
— 9	5 36 –	11 45 –	3 9	2 23	- - - - -	0 15
— 10	5 36 –	11 55 –	3 39	2 35	- - - - -	0 25
— 11	5 42 –	0 6 p.m.	3 28	3 15	- - - - -	0 36
— 12	5 42 –	11 52 –	2 45	2 38	- - - - -	0 22
— 13	5 42 –	11 45 –	3 11	2 30	- - - - -	0 15
— 14	5 30 –	11 50 –	2 55	2 32	- - - - -	0 20
— 15	6 48 –	11 46 –	2 37	2 32	1 3 late coach - -	0 16
— 16	6 17 –	11 37 –	2 38	2 28	0 32 waiting water out	0 7
— 17	7 10 –	11 43 –	3 15	2 32	1 10 ditto, and late coach.	0 13
— 18	5 22 –	11 47 –	2 41	2 31	- - - - -	0 17
— 19	5 40 –	11 41 –	3 11	2 37	- - - - -	0 11
— 20	5 27 –	11 35 –	2 45	2 30	- - - - -	0 5
— 21	5 42 –	11 43 –	2 31	2 35	- - - - -	0 13
— 22	5 48 –	11 43 –	2 52	2 31	0 3 late coach - -	0 13
— 23	5 39 –	11 40 –	3 11	2 40	- - - - -	0 10
— 24	5 31 –	11 42 –	2 44	2 33	- - - - -	0 12
— 25	5 33 –	11 48 –	2 47	2 42	- - - - -	0 18
— 26	5 27 –	11 45 –	3 38	2 32	- - - - -	0 15
— 27	5 35 –	11 42 –	2 55	2 32	- - - - -	0 12
— 28	5 41 –	11 41 –	2 54	2 34	- - - - -	0 11
— 29	5 41 –	11 48 –	2 54	2 32	- - - - -	0 18
— 30	6 9 –	11 58 –	3 0	2 40	0 24 late coach - -	0 28
— 31	6 42 –	11 55 –	2 38	2 30	0 57 waiting water out	0 25
September 1	6 0 –	11 54 –	3 25	2 41	0 15 late coach - -	0 24
— 2	7 49 –	1 0 p.m.	4 31	2 50	1 16 ditto, and stormy winds.	0 30
— 3	5 47 –	11 48 a.m.	2 58	2 27	0 2 late coach - -	0 18 waiting arrival of Dublin mail.
— 4	5 40 –	11 52 –	2 45	2 32	- - - - -	0 22
— 5	5 52 –	0 6 p.m.	2 45	2 34	0 7 late coach - -	0 36
— 6	5 45 –	11 46 a.m.	2 40	2 34	- - - - -	0 16
— 7	5 45 –	11 53 –	2 44	2 35	- - - - -	0 23
— 8	5 44 –	11 55 –	2 58	2 50	- - - - -	0 25
— 9	5 45 –	11 46 –	2 50	2 49	- - - - -	0 16
— 10	5 58 –	11 56 –	3 7	2 32	0 13 waiting the London mail -	0 26
— 11	5 53 –	11 55 –	2 59	2 17	0 8	0 25
— 12	6 7 –	11 47 –	2 35	2 40	0 22	0 17
— 13	5 49 –	11 44 –	2 24	3 16	0 4	0 14

DATE.	TIME LEFT		Number of Hours on Passage		Mail detained beyond Fixed Time; Length of Detention, and Cause thereof.			
	Portpatrick.	Donaghadee.	To Donaghadee.	To Portpatrick.	At Portpatrick.		At Donaghadee.	
1841:	H. M.	H. M.	H. M.	H. M.	H. M.		H. M.	
Septemb. 14	5 55 a.m.	11 45 a.m.	2 37	2 45	0 10	waiting water out	0 15	waiting arrival of Dublin mail.
— 15	6 7 –	11 50 –	2 43	3 10	0 22	late coach - -	0 20	
— 16	7 30 –	11 54 –	2 35	2 36	1 40	waiting water, and strong winds.	0 24	
— 17	5 49 –	11 55 –	2 35	2 30	0 4	late coach -	0 25	
— 18	5 46 –	11 48 –	2 39	2 45	0 1		0 18	
— 19	5 40 –	11 35 –	2 44	3 5	-	- - - -	0 5	
— 20	5 52 –	11 47 –	2 40	2 48	0 7	late coach -	0 17	
— 21	5 57 –	11 58 –	2 41	3 47	0 12		0 28	
— 22	5 38 –	- nooo -	2 44	5 30	-	- - - -	0 30	
— 23	5 50 –	11 53 a.m.	2 40	2 40	0 5	late coach - -	0 23	
— 24	5 45 –	11 51 –	2 40	2 44	-	- - - -	0 21	
— 25	5 45 –	11 52 –	2 30	2 40	-	- - - -	0 22	
— 26	5 53 –	11 47 –	2 45	2 31	0 8	late coach - -	0 17	
— 27	5 42 –	11 33 –	2 27	2 22	-	- - - -	0 3	
— 28	5 22 –	11 45 –	2 53	2 40	-	- - - -	0 15	
— 29	5 53 –	11 57 –	3 28	2 30	0 8	late coach - -	0 27	
— 30	5 53 –	11 52 –	3 39	2 35	0 8	waiting water out; strong winds.	0 22	
October 1	6 45 –	11 47 –	3 7	2 28	1 0	ditto - -	0 17	
— 2	5 54 –	11 44 –	2 51	2 26	0 9	waiting for London mail	0 14	
— 3	5 52 –	0 1 p.m.	2 32	2 34	0 7		0 31	
— 4	6 2 –	11 47 a.m.	2 28	4 53	0 17		0 17	
— 5	5 53 –	- noon -	2 32	6 0	0 8		0 30	
— 6	6 4 –	11 55 a.m.	2 46	4 10	0 19		0 25	
— 7	6 8 –	11 58 –	2 42	3 32	0 23		0 28	
— 8	5 50 –	11 58 –	2 45	3 7	0 5		0 28	
— 9	5 50 –	0 12 p.m.	3 0	2 40	0 5		0 42	
— 10	6 3 –	0 10 –	4 17	2 40	0 18		0 44	
— 11	6 55 –	11 58 a.m.	4 10	2 37	1 10		0 28	
— 12	5 45 –	0 3 p.m.	2 40	2 32	-	- - - -	0 33	
— 13	6 5 –	11 57 a.m.	3 7	2 38	0 20	late coach -	0 27	
— 14	6 39 –	0 5 p.m.	4 30	2 40	0 54		0 35	
— 15	6 46 –	- noon -	4 7	2 40	1 1	waiting the London mail, and water out; stormy winds.	0 30	
— 16	7 23 –	0 55 p.m.	5 27	2 40	1 38		1 25	
— 17	7 55 –	2 48 –	6 53	2 27	2 10		2 48	for the packet.
— 18	9 10 –	0 48 –	3 30	2 36	3 25		1 18	waiting the arrival of the Dublin and Belfast mail.
— 19	6 36 –	0 8 –	4 0	2 30	0 54	waiting the London mails	0 38	
— 20	7 0 –	1 10 –	5 50	2 23	1 15		1 40	
— 21	6 25 –	0 19 –	3 20	2 26	0 40		0 49	
— 22	6 25 –	0 22 –	3 31	2 18	0 40		0 52	
— 23	6 40 –	0 18 –	3 20	2 34	0 55		0 48	
— 24	5 50 –	0 7 –	2 35	2 43	0 5		0 37	
— 25	6 30 –	0 2 –	2 25	3 28	0 45		0 32	
— 26	6 0 –	0 27 –	3 28	3 30	0 15		0 57	
— 27	6 5 –	0 2 –	2 17	3 38	0 20		0 32	
— 28	5 55 –	0 2 –	2 20	2 43	0 10		0 32	
— 29	6 13 –	11 40 a.m.	2 25	2 27	0 28	late coach, and want of water out.	0 10	
— 30	5 35 –	11 48 –	2 27	2 47	-	- - - -	0 18	
— 31	5 40 –	11 38 –	2 22	2 20	-	- - - -	0 8	
November 1	6 15 –	11 50 –	2 42	2 20	0 30	late coach - -	0 20	
— 2	5 45 –	11 55 –	2 22	2 18	-	- - - -	0 25	
— 3	6 11 –	0 1 p.m.	2 50	2 29	0 26	late coach -	0 31	
— 4	6 5 –	0 2 –	2 36	2 23	0 20		0 32	
— 5	5 40 –	0 4 –	2 56	2 19	-	- - - -	0 34	
— 6	6 30 –	0 7 –	4 18	2 26	0 45	waiting the London mail -	0 37	
— 7	6 30 –	0 23 –	3 2	2 32	0 45		0 53	
— 8	6 45 –	0 6 –	3 15	2 29	1 0	waiting for London mail -	0 36	
— 9	6 18 –	0 14 –	4 20	2 24	0 33		0 44	
— 10	7 3 –	0 10 –	3 22	2 17	1 18		0 40	
— 11	6 25 –	0 13 –	2 55	2 18	0 40		0 43	
— 12	6 15 –	0 4 –	3 55	2 18	0 30		0 34	
— 13	6 30 –	11 56 a.m.	3 22	2 22	0 45		0 26	
— 14	7 32 –	0 10 p.m.	2 21	2 39	1 47	late coach, & want of water out; strong winds -	0 40	
— 15	6 0 –	0 5 –	2 30	3 47	0 15		0 35	
— 16	6 15 –	1 40 –	2 30	2 20	0 30	waiting the London mails -	2 10	
— 17	6 3 –	2 27 –	2 35	2 28	0 18		2 57	
— 18	6 50 –	2 10 –	2 30	2 44	1 5		2 40	
— 19	6 15 –	2 40 –	2 50	2 30	0 30		3 10	
— 20	6 0 –	2 9 –	2 34	2 46	0 15		2 39	
— 21	5 50 –	1 30 –	3 20	2 45	0 5		2 0	

(continued)

DATE.	TIME LEFT		Number of Hours on Passage		Mail detained beyond Fixed Time; Length of Detention, and Cause thereof.			
	Portpatrick.	Donaghadee.	To Donaghadee.	To Portpatrick.	At Portpatrick.		At Donaghadee.	
1841:	H. M.	H. M.	H. M.	H. M.	H. M.		H. M.	
Novemb. 22	6 48 a.m.	1 0 p.m.	2 37	2 33	1 3	- - -	1 30	
— 23	6 30 –	0 26 –	4 45	2 34	0 45	- - -	0 56	
— 24	6 25 –	0 20 –	4 25	2 25	0 40	- - -	0 50	
— 25	6 15 –	0 58 –	2 32	2 47	0 30	- - -	1 28	
— 26	6 18 –	0 40 –	2 25	2 50	0 33	- - -	1 10	
— 27	6 31 –	1 7 –	2 44	3 55	0 46	- - -	1 37	
— 28	6 17 –	0 36 –	2 33	2 39	0 32	- - -	1 6	
— 29	5 52 –	0 13 –	3 23	2 47	0 7	- - -	0 43	
— 30	6 0 –	0 17 –	2 37	2 33	0 15	- - -	0 47	
December 1	6 4 –	0 35 –	5 8	2 30	0 19	- - -	1 5	
— 2	6 30 –	11 54 a.m.	2 40	2 36	0 45	waiting the London mails.	0 24	waiting for the Dublin and Belfast mail.
— 3	5 50 –	0 43 p.m.	2 40	3 21	0 5	- - -	1 13	
— 4	6 15 –	0 50 –	3 0	2 34	0 30	- - -	1 20	
— 5	6 46 –	0 12 –	3 24	2 53	1 1	- - -	0 42	
— 6	7 5 –	0 5 –	3 35	2 38	1 20	- - -	0 35	
— 7	5 56 –	0 35 –	3 38	2 35	0 11	- - -	1 5	
— 8	6 35 –	0 15 –	4 9	2 40	0 50	- - -	0 45	
— 9	6 0 –	0 4 –	2 53	2 21	0 15	- - -	0 34	
— 10	6 55 –	11 57 a.m.	4 20	2 33	1 10	- - -	0 27	
— 11	6 35 –	11 50 –	4 55	2 30	0 50	- - -	0 20	
— 12	6 50 –	0 2 p.m.	4 20	2 28	1 5	- - -	0 32	
— 13	6 20 –	11 45 a.m.	4 3	2 25	0 35	- - -	0 15	
— 14	7 30 –	0 1 p.m.	3 28	2 19	1 45	stormy winds, and water out over the bar.	0 31	
— 15	7 30 –	2 47 –	7 15	2 28	1 45		2 47	for the packet.
— 16	6 35 –	0 7 –	5 20	3 10	0 50	- - -	0 37	
— 17	6 20 –	0 45 –	3 5	2 45	0 35	- - -	1 15	
— 18	6 58 –	0 56 –	2 32	2 19	1 7	- - -	0 28	
— 19	6 28 –	1 12 –	2 32	2 58	0 43	- - -	1 42	
— 20	6 10 –	0 38 –	2 37	2 32	0 25	waiting the London mail.	1 8	
— 21	5 47 –	0 40 –	2 58	3 26	0 2		1 10	
— 22	6 8 –	0 27 –	2 47	2 36	0 23	- - -	0 57	
— 23	6 0 –	0 15 –	3 25	2 45	0 15	- - -	0 48	waiting Dublin mail.
— 24	6 27 –	0 23 –	4 21	2 35	0 42	- - -	0 53	
— 25	6 27 –	0 24 –	4 58	2 24	0 42	- - -	0 54	
— 26	6 10 –	0 2 –	3 15	2 18	0 25	- - -	0 32	
— 27	5 55 –	11 45 a.m.	3 5	2 24	0 10	wanting water out	0 15	
— 28	6 25 –	11 47 –	2 59	2 23	0 40	- - -	0 17	
— 29	6 10 –	11 47 –	2 45	2 28	0 25	waiting London mail	0 17	
— 30	6 0 –	11 51 –	2 28	2 26	0 15	- -	0 21	
— 31	6 10 –	0 10 p.m.	2 30	2 26	0 25	- - -	0 40	

Note—The time given in the above Return is Dublin.

16 June 1842.

G. L. Wynn, Commander R.N.
Conducting Packet Service.

Admiralty,
18 June 1842.

H. F. AMEDROZ,
Chief Clerk.

Appendix, No. 2.

A RETURN of the HOURS at which Her Majesty's MAIL STEAM PACKETS have left *Hobb's Point* and *Waterford* respectively, the Number of Hours occupied in the Passage, specifying the Days on which the Mail has been detained beyond the Fixed Time, the length of Detention, and the Cause thereof.—As per Admiralty Order of 18th April 1842.

DATE.	TIME LEFT		Number of Hours occupied in the Passage		Mail detained beyond Fixed Time; Length of Detention, and Cause.	
	Hobb's Point.	Waterford.	To Waterford.	To Hobb's Point.	At Waterford.	At Hobb's Point.
1841:	H. M.	H. M.	H. M.	H. M.		
January 1	3 0 a. m.	6 28 a. m.	16 45	12 52	2 hours; N. W. winds.	
— 2	2 25 –	6 30 –	16 5	12 0	45 minutes; ditto.	
— 3	2 44 –	6 30 –	* - -	11 15	45 ½ hrs.; N. W. gale.	
— 4	3 0 p. m.	no arrival.*	* - -			
— 5	3 15 a. m.	9 15 a. m.	14 15	11 15		
— 6	3 30 –	6 30 –	12 45	11 30		
— 7	2 25 –	6 30 –	10 35	11 45		
— 8	3 35 –	6 25 –	12 25	11 35		
— 9	2 48 –	7 30 –	15 12	18 5	15 min.; W. winds -	57 min.; S. W. gale, and heavy sea.
— 10	3 13 –	6 50 –	13 7	11 10		
— 11	5 28 –	7 25 –	13 47	10 50	1 ½ hrs.; N. W. winds, and lateness of coach.	
— 12	6 40 –	6 42 –	14 55	11 48	3 h. 50 m.; ditto, ditto.	
— 13	5 4 –	6 45 –	11 31	12 45		
— 14	4 52 –	6 35 –	13 18	13 50		
— 15	3 50 –	6 46 –	11 30	24 47	- - - -	6 h. 55 m.; S. E. gale.
— 16	†11 15 –	6 45 –	25 50	15 15	19 hrs.; strong W. S. W. winds.	
— 17	6 57 –	- - -	18 8	no arrival -	7 h. 20 m.; S. W. gale	14 h. 12 m.; S. W. gales & fog.
— 18	- - - -	‡1 45 –	- - -	‡ 13 5	5 h. 30 m.; W. winds, and lateness of coach.	
	9 35 –	7 0 –	13 25	15 15		
— 19	3 35 –	6 45 –	12 55	11 15		
— 20	5 17 –	6 35 –	14 13	11 55	1 h. 45 m.; lateness of coach.	
— 21	4 10 –	6 30 –	12 50	9 55		
— 22	3 50 –	6 35 –	24 40	9 55	10 hrs.; W. winds.	
— 23	3 55 –	6 35 –	12 25	11 25		
— 24	4 41 –	6 35 –	20 9	9 30	7 h. 5 m.; N. gale.	
— 25	4 30 –	6 35 –	11 40	11 17		
— 26	4 40 –	6 50 –	11 40	11 30		
— 27	3 25 –	6 40 –	15 48	12 20	1 h. 28 m.; N. W. winds.	
— 28	4 20 –	6 28 –	12 40	11 42		
— 29	4 35 –	7 0 –	11 55	10 50		
— 30	4 56 –	6 40 –	14 44	10 30	1 h. 55 m.; N. W. winds, and lateness of coach.	
— 31	4 25 –	6 28 –	12 5	12 44		
February 1	6 15 –	6 35 –	11 45	16 55	15 min.; lateness of coach.	
— 2	4 37 –	6 30 –	12 8	14 0		
— 3	3 25 –	6 34 –	10 15	20 11	- - - -	2 h. 7 m.; E. gale.
— 4	3 33 –	6 30 –	10 27	18 30	- - - -	22 min.; ditto.
— 5	3 38 –	6 30 –	9 52	no arrival.		
— 6	3 10 –	6 30 –	11 20	24 0	- - - -	5 h. 52 m.; ditto.§
— 7	3 50 –	7 0 –	11 15	19 30	- - - -	1 h. 52 m.; E. S. E. winds.
— 8	11 45 p. m. of 7th	6 20 –	12 15	18 5		
— 9	12 25 a. m.	6 25 –	13 0	10 50		
— 10	11 53 p. m. of 9th	6 40 –	12 12	48 20	- - - -	18 h. 22 m.; S. S. E. gales & fog.
— 11	1 17 a. m.	7 10 –	12 13	13 10		
— 12	12 55 –	6 25 –	14 15	10 55		
— 13	12 25 –	6 30 –	12 35	21 45	- - - -	5 h. 2 m.; S. W. gale.
— 14	12 23 –	7 20 –	11 47	11 40		
— 15	1 23 –	6 30 –	13 37	12 0		
— 16	12 18 –	6 55 –	11 17	14 30		
— 17	1 0 –	6 50 –	11 30	11 55		
— 18	12 48 –	6 30 –	13 52	14 10		
— 19	12 50 –	6 30 –	12 10	16 0		
— 20	2 10 –	6 50 –	12 20	12 30		
— 21	2 10 –	7 0 –	14 0	21 10	- - - -	3 h. 32 m.; S. E. winds.
— 22	1 30 –	6 28 –	12 30	13 37		
— 23	12 25 –	6 55 –	13 35	11 25		

(continued)

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* Heavy N. W. gale; packet could not proceed to Waterford, but returned for second mail,

† Mail-coach detained by snow.

‡ Two packets sailed from Waterford.

§ Two mails conveyed.

DATE.		TIME LEFT				Number of Hours occupied in the Passage				Mail detained beyond Fixed Time; Length of Detention, and Cause.	
		Hobb's Point.		Waterford.		To Waterford.		To Hobb's Point.		At Waterford.	At Hobb's Point.
1841:		H.	M.	H.	M.	H.	M.	H.	M.		
Feb.	24	12	25 a. m.	7	30 a. m.	12	35	11	5		
—	25	12	28 –	6	40 –	13	42	9	50		
—	26	12	23 –	6	40 –	17	3	10	40		
—	27	1	45 –	6	45 –	16	0	10	35		
—	28	1	21 –	6	50 –	15	24	10	25		
March	1	1	25 –	6	18 –	17	55	12	22	1 h. 25 m.; w. winds.	
—	2	12	6 –	6	40 –	11	39	11	25		
—	3	12	25 –	6	30 –	19	5	10	45	1 h. 45 m.; - ditto.	
—	4	12	25 –	6	16 –	12	0	14	4		
—	5	1	2 –	6	25 –	11	28	12	50		
—	6	12	24 –	6	25 –	13	41	11	0		
—	7	12	27 –	6	30 –	14	48	12	0		
—	8	12	19 –	6	30 –	13	31	11	35		
—	9	12	20 –	6	45 –	14	0	11	10		
—	10	12	15 –	6	32 –	15	30	12	3		
—	11	12	8 –	6	30 –	13	22	11	45		
—	12	11	51 p. m. of 11th	6	40 –	11	9	17	35		
—	13	12	3 a. m.	6	35 –	13	47	11	20		
—	14	12	1 –	6	45 –	10	29	11	55		
—	15	12	35 –	6	35 –	10	25	12	18		
—	16	11	51 p. m. of 15th	6	25 –	11	19	15	50		
—	17	11	40 p. m. of 16th	6	20 –	11	20	16	0		
—	18	12	16 a. m.	7	10 –	10	39	14	22		
—	19	12	18 –	6	25 –	15	42	14	50		
—	20	12	3 –	6	30 –	11	57	18	0		
—	21	12	6 –	6	35 –	12	24	19	55	- - - -	1 h. 52 m.; s. w. gale and fog.
—	22	12	44 –	6	20 –	18	36	11	40		
—	23	11	55 p. m. of 22d	6	32 –	15	15	12	38	1 h. 35 m.; w. gale.	
—	24	11	41 p. m. of 23d	6	30 –	13	49	11	45		
—	25	12	17 a. m.	6	35 –	14	13	11	55		
—	26	11	51 p. m. of 25th	6	22 –	16	29	11	58		
—	27	12	22 a. m.	6	30 –	14	1	10	45		
—	28	11	56 p. m. of 27th	6	45 –	11	34	11	15		
—	29	12	25 a. m.	6	15 –	11	35	12	30		
—	30	11	46 p. m. of 29th	6	30 –	13	39	11	30		
—	31	11	36 p. m. of 30th	6	40 –	24	24	10	50	6 ½ hrs.; N. W. gale.	
April	1	12	11 a. m.	6	55 –	17	0	11	35		
—	2	12	40 –	6	20 –	12	20	13	5		
—	3	12	36 –	6	35 –	11	24	11	25		
—	4	11	43 p. m. of 3d	6	25 –	14	2	12	55		
—	5	12	3 a. m.	6	15 –	13	42	13	0		
—	6	11	46 p. m. of 5th	6	35 –	12	15	10	45		
—	7	11	56 p. m. of 6th	6	20 –	14	4	10	5		
—	8	11	58 p. m. of 7th	6	15 –	15	47	11	35		
—	9	11	41 p. m. of 8th	6	25 –	14	19	10	39		
—	10	12	15 a. m.	6	30 –	14	50	10	23		
—	11	11	26 p. m. of 10th	6	24 –	13	4	12	30		
—	12	11	45 p. m. of 11th	6	15 –	11	45	11	8		
—	13	11	31 p. m. of 12th	6	15 –	10	29	11	31		
—	14	11	38 p. m. of 13th	6	20 –	13	7	11	10		
—	15	11	56 p. m. of 14th	6	25 –	13	14	11	25		
—	16	11	48 p. m. of 15th	6	30 –	11	42	11	30		
—	17	12	6 a. m.	6	20 –	12	39	11	30		
—	18	11	50 p. m. of 17th	6	15 –	12	35	11	18		
—	19	11	41 p. m. of 18th	6	25 –	12	49	11	0		
—	20	11	40 p. m. of 19th	6	20 –	13	30	10	7		
—	21	11	56 p. m. of 20th	6	20 –	12	4	11	40		
—	22	11	56 p. m. of 21st	6	25 –	11	39	11	20		
—	23	11	34 p. m. of 22d	6	35 –	13	1	9	50		
—	24	11	59 p. m. of 23d	6	15 –	13	1	18	25	- - - -	2 min.; southerly gale.
—	25	11	46 p. m. of 24th	6	25 –	13	44	13	22		
—	26	12	42 a. m.	6	30 –	16	18	12	50		
—	27	11	44 p. m. of 26th	6	28 –	11	6	12	56		
—	28	11	47 p. m. of 27th	6	15 –	12	18	12	1		
—	29	11	41 p. m. of 28th	6	15 –	11	19	12	3		
—	30	11	36 p. m. of 29th	6	18 –	10	14	14	32		
May	1	11	51 p. m. of 30th	6	20 –	10	19	13	9		
—	2	11	46 p. m. of 1st	6	20 –	12	14	11	15		
—	3	12	11 a. m.	6	15 –	11	49	14	35		
—	4	12	9 –	6	20 –	11	41	15	10		

DATE.	TIME LEFT		Number of Hours occupied in the Passage		Mail detained beyond Fixed Time; Length of Detention, and Cause.	
	Hobb's Point.	Waterford.	To Waterford.	To Hobb's Point.	At Waterford.	At Hobb's Point.
1841:	H. M.	H. M.	H. M.	H. M.		
May - 5	11 51 p.m. of 4th	6 30 a.m.	14 24	11 5		
— 6	11 37 p.m. of 5th	6 15 –	13 33	12 52		
— 7	11 48 p.m. of 6th	6 20 –	12 42	11 40		
— 8	11 46 p.m. of 7th	6 20 –	14 34	10 15		
— 9	12 4 a.m.	6 15 –	13 36	14 0		
— 10	12 15 –	6 20 –	12 25	12 10		
— 11	11 46 p.m. of 10th	6 20 –	14 4	11 50		
— 12	12 3 a.m.	6 15 –	13 57	12 15		
— 13	11 26 p.m. of 12th	6 15 –	10 14	12 0		
— 14	11 30 p.m. of 13th	6 20 –	11 40	11 48		
— 15	11 47 p.m. of 14th	6 15 –	10 28	12 45		
— 16	11 37 p.m. of 15th	6 25 –	12 53	11 15		
— 17	12 1 a.m.	6 15 –	15 9	11 54		
— 18	11 16 p.m. of 17th	6 20 –	13 54	12 40		
— 19	11 51 p.m. of 18th	6 20 –	13 9	12 14		
— 20	11 34 p.m. of 19th	6 30 –	18 21	10 35	10 m; westerly winds.	
— 21	11 46 p.m. of 20th	6 20 –	12 59	13 45		
— 22	11 56 p.m. of 21st	6 20 –	13 4	11 5		
— 23	11 31 p.m. of 22d	6 15 –	11 29	10 45		
— 24	11 56 p.m. of 23d	6 15 –	12 54	10 0		
— 25	11 36 p.m. of 24th	6 15 –	10 24	11 27		
— 26	12 5 a.m.	6 15 –	9 25	12 8		
— 27	11 46 p.m. of 26th	6 25 –	10 59	11 5		
— 28	11 45 p.m. of 27th	6 20 –	10 5	15 30		
— 29	12 2 a.m.	6 25 –	9 58	12 55		
— 30	11 51 p.m. of 29th	6 20 –	11 24	11 45		
— 31	12 6 a.m.	6 15 –	10 4	13 3		
June - 1	11 51 p.m. of 31st	6 25 –	11 14	11 35		
— 2	12 16 a.m.	6 17 –	12 19	10 38		
— 3	12 10 –	6 15 –	13 45	9 25		
— 4	11 56 p.m. of 3d	6 18 –	13 19	11 32		
— 5	12 10 a.m.	6 15 –	11 50	10 26		
— 6	12 1 –	6 15 –	11 59	10 · 20		
— 7	12 5 –	6 15 –	14 5	10 0		
— 8	11 51 p.m. of 7th	6 15 –	12 54	12 45		
— 9	12 15 a.m.	6 15 –	10 45	11 5		
— 10	12 4 –	6 17 –	11 6	10 37		
— 11	11 34 p.m. of 10th	6 15 –	13 21	11 43		
— 12	12 10 a.m.	6 18 –	11 0	12 42		
— 13	11 51 p.m. of 12th	6 15 –	9 54	11 45		
— 14	12 11 a.m.	6 15 –	10 19	11 13		
— 15	12 8 –	6 15 –	11 57	12 17		
— 16	12 11 –	6 20 –	11 19	10 50		
— 17	12 25 –	6 15 –	11 15	12 55		
— 18	11 35 p.m. of 17th	6 25 –	12 24	10 35		
— 19	11 41 p.m. of 18th	6 15 –	12 49	10 45		
— 20	11 32 p.m. of 19th	6 20 –	14 28	13 10		
— 21	12 0 p.m. of 20th	6 15 –	17 45	11 0		
— 22	12 46 a.m.	6 18 –	13 44	10 27		
— 23	11 21 p.m. of 22d	6 15 –	11 0	11 0		
— 24	11 44 p.m. of 23d	6 20 –	12 31	11 0		
— 25	11 40 p.m. of 24th	6 15 –	10 5	15 30		
— 26	11 51 p.m. of 25th	6 15 –	10 19	12 45		
— 27	11 45 p.m. of 26th	6 15 –	11 35	11 49		
— 28	11 41 p.m. of 27th	6 15 –	14 49	11 25		
— 29	11 56 p.m. of 28th	6 15 –	12 39	13 20		
— 30	11 41 p.m. of 29th	6 15 –	12 34	12 0		
July - 1	12 6 a.m.	6 15 –	14 9	10 40		
— 2	11 31 p.m. of 1st	6 15 –	15 4	9 55		
— 3	12 6 a.m.	6 15 –	12 59	11 45		
— 4	11 31 p.m. of 3d	6 25 –	13 9	10 45		
— 5	11 41 p.m. of 4th	6 15 –	12 44	10 12		
— 6	11 44 p.m. of 5th	6 15 –	17 26	11 10		
— 7	11 46 p.m. of 6th	6 15 –	15 14	11 19		
— 8	11 31 p.m. of 7th	6 15 –	14 59	10 53		
— 9	11 50 p.m. of 8th	6 15 –	13 40	10 30		
— 10	11 32 p.m. of 9th	6 15 –	13 33	11 10		
— 11	11 23 p.m. of 10th	6 15 –	19 17	11 22	55 min.; N. W. winds.	
— 12	11 40 p.m. of 11th	6 15 –	12 21	11 14		
— 13	11 16 p.m. of 12th	6 15 –	13 54	12 20		
— 14	11 48 p.m. of 13th	6 15 –	10 22	12 45		
— 15	12 1 a.m.	6 27 –	10 49	11 23		

(continued)

DATE.	TIME LEFT		Number of Hours occupied in the Passage		Mail detained beyond Fixed Time; Length of Detention, and Cause.	
	Hobb's Point.	Waterford.	To Waterford.	To Hobb's Point.	At Waterford.	At Hobb's Point.
1841:	H. M.	H. M.	H. M.	H. M.		
July - 16	11 41 p.m. of 15th	6 15 a.m.	11 55	12 13		
— 17	12 0 p.m. of 16th	6 15 –	11 45	12 10		
— 18	11 56 p.m. of 17th	6 30 –	12 34	12 40		
— 19	12 6 a.m.	6 15 –	13 59	10 30		
— 20	11 44 p.m. of 19th	6 15 –	14 16	11 30		
— 21	11 51 p.m. of 20th	6 25 –	16 9	10 25		
— 22	11 54 p.m. of 21st	6 18 –	17 17	10 27		
— 23	12 1 a.m.	6 16 –	12 29	11 50		
— 24	11 56 p.m. of 23d	6 20 –	11 4	10 45		
— 25	12 31 a.m.	6 15 –	10 0	11 40		
— 26	11 51 p.m. of 25th	6 15 –	10 29	11 19		
— 27	11 49 p.m. of 26th	6 15 –	9 51	11 45		
— 28	12 6 a.m.	6 15 –	15 54	11 20		
— 29	12 1 –	6 15 –	15 40	11 45		
— 30	11 56 p.m. of 29th	6 20 –	13 49	11 24		
— 31	12 1 a.m.	6 15 –	14 19	11 15		
August 1	12 15 –	6 20 –	14 30	10 0		
— 2	12 23 –	6 20 –	12 2	11 45		
— 3	11 54 p.m. of 2d	6 15 –	13 16	12 45		
— 4	12 1 a.m.	6 15 –	14 49	11 16		
— 5	12 25 –	6 20 –	15 50	11 15		
— 6	12 25 –	6 15 –	20 35	11 45	4 ½ hrs.; N. W. winds.	
— 7	12 11 –	6 16 –	15 29	10 49		
— 8	12 26 –	6 15 –	14 5	11 25		
— 9	12 1 –	6 15 –	17 19	10 30		
— 10	12 1 –	6 15 –	12 0	15 10		
— 11	12 11 –	6 15 –	17 4	11 57		
— 12	12 11 –	6 15 –	11 44	11 58		
— 13	12 10 –	6 25 –	12 40	17 10		
— 14	12 26 –	6 25 –	13 0	13 10		
— 15	12 10 –	6 25 –	13 35	12 7		
— 16	12 46 –	6 15 –	13 9	10 18		
— 17	12 18 –	6 22 –	13 52	12 13		
— 18	12 24 –	6 20 –	14 21	10 32		
— 19	12 16 –	6 20 –	16 29	11 40		
— 20	12 11 –	6 20 –	13 34	12 40		
— 21	12 11 –	6 20 –	15 4	10 50		
— 22	11 46 p.m. of 23d	6 25 –	12 49	12 20		
— 23	12 26 a.m.	6 20 –	14 9	11 15		
— 24	11 51 p.m. of 23d	6 20 –	14 24	11 17		
— 25	11 48 p.m. of 24th	6 20 –	15 12	12 20		
— 26	12 35 a.m.	6 20 –	16 0	11 40		
— 27	11 54 p.m. of 26th	6 25 –	12 16	12 35		
— 28	12 21 a.m.	6 17 –	13 29	11 1		
— 29	12 7 –	6 25 –	11 63	11 40		
— 30	11 46 p.m. of 29th	6 25 –	13 29	10 25		
— 31	11 31 p.m. of 30th	6 20 –	13 0	12 0		
Sept. - 1	11 41 p.m. of 31 Aug.	6 25 –	13 49	10 35		
— 2	11 21 p.m. of 1st	6 30 –	12 39	14 30		
— 3	11 28 p.m. of 2d	6 15 –	15 32	10 10		
— 4	11 40 p.m. of 3d	6 24 –	17 10	12 0		
— 5	11 29 p.m. of 4th	6 25 –	13 51	11 15		
— 6	11 31 p.m. of 5th	6 15 –	10 59	11 4		
— 7	11 13 p.m. of 6th	6 30 –	13 12	10 45		
— 8	11 28 p.m. of 7th	6 26 –	13 47	12 34		
— 9	11 23 p.m. of 8th	6 30 –	10 2	13 15		
— 10	11 15 p.m. of 9th	6 25 –	11 45	15 0		
— 11	11 55 p.m. of 10th	6 20 –	13 50	12 47		
— 12	11 28 p.m. of 11th	6 25 –	11 32	14 50		
— 13	11 47 p.m. of 12th	6 25 –	11 43	16 3		
— 14	11 33 p.m. of 13th	6 30 –	12 7	15 56		
— 15	11 50 p.m. of 14th	6 20 –	13 0	15 40		
— 16	11 14 p.m. of 15th	6 30 –	16 16	10 45		
— 17	11 20 p.m. of 16th	6 30 –	13 10	11 55	- - - -	1 h. 12 m.; S. E. winds.
— 18	11 11 p.m. of 17th	6 20 –	13 9	19 30		
— 19	11 11 p.m. of 18th	6 15 –	12 24	12 57		
— 20	11 11 p.m. of 19th	6 25 –	12 49	14 15		
— 21	11 11 p.m. of 20th	6 35 –	9 59	17 45	- - - -	52 min.; S. E. gale.
— 22	11 11 p.m. of 21st	6 30 –	10 39	19 0		
— 23	11 25 p.m. of 22d	6 30 –	10 35	12 63		
— 24	11 16 p.m. of 23d	6 30 –	12 39	13 0		
— 25	11 18 p.m. of 24th	6 25 –	11 52	13 25		

DATE.	TIME LEFT				Number of Hours occupied in the Passage				Mail detained beyond Fixed Time; Length of Detention, and Cause.	
	Hobb's Point.		Waterford.		To Waterford.		To Hobb's Point.		At Waterford.	At Hobb's Point.
1841:	H.	M.	H.	M.	H.	M.	H.	M.		
Sept. - 26	11	11 p. m. of 25th	6	20 a. m.	11	49	13	33		
— 27	11	13 p. m. of 26th	6	15 –	11	57	13	20		
— 28	11	22 p. m. of 27th	6	35 –	16	23	15	25		
— 29	11	11 p. m. of 28th	6	25 –	16	4	12	46		
— 30	11	9 p. m. of 29th	6	20 –	14	36	11	34		
Oct. 1	11	19 p. m. of 30th	6	20 –	13	0	10	20		
— 2	11	6 p. m. of 1st	6	25 –	14	19	10	30		
— 3	11	11 p. m. of 2d	6	20 –	13	19	12	25		
— 4	11	18 p. m. of 3d	6	25 –	10	44	18	15	- - - -	2 m.; S.E. winds.
— 5	11	6 p. m. of 4th	6	20 –	12	24	11	5		
— 6	11	11 p. m. of 5th	6	30 –	18	39	10	55	5 min.; W. winds.	
— 7	11	21 p. m. of 6th	6	26 –	14	59	12	4		
— 8	11	19 p. m. of 7th	6	25 –	17	11	11	35		
— 9	11	14 p. m. of 8th	6	15 –	13	46	11	29		
— 10	11	18 p. m. of 9th	6	15 –	12	12	13	50		
— 11	10	55 p. m. of 10th	6	30 –	15	25	13	20		
— 12	11	11 p. m. of 11th	6	40 –	17	34	12	42		
— 13	11	30 p. m. of 12th	6	20 –	14	30	10	40		
— 14	11	26 p. m. of 13th	6	30 –	17	14	10	27		
— 15	11	10 p. m. of 14th	6	34 –	37	25	9	49	18 h. 50 m.; W. gale.	
— 16	11	34 p. m. of 15th	3	40 p. m.	19	41	12	20	1 h. 30 m.; W. winds	3 h. 22 m.; westerly gale.
— 17	12	2 a. m.	6	20 a. m.	20	13	10	11	3 h. 30 m.; N.W. winds.	
— 18	*9	0 –	6	30 –	14	5	11	5	5 h. 20 m. - ditto.	
— 19	11	22 p. m. of 18th	6	38 –	27	0	10	16	8 h. 37 m. - ditto.	
— 20	11	26 p. m. of 19th	6	25 –	18	49	11	25	0 h. 30 m. - ditto.	
— 21	11	6 p. m. of 20th	6	20 –	20	34	11	57	1 h. 55 m. - ditto.	
— 22	11	16 p. m. of 21st	6	35 –	11	14	17	15		
— 23	11	9 p. m. of 22d	6	25 –	13	46	13	39		
— 24	11	16 p. m. of 23d	6	28 –	17	29	13	22		
— 25	10	59 p. m. of 24th	6	30 –	16	31	11	42		
— 26	11	39 p. m. of 25th	6	50 –	11	9	15	35		
— 27	11	21 p. m. of 26th	6	35 –	13	24	12	5		
— 28	11	30 p. m. of 27th	6	35 –	12	50	15	0		
— 29	11	36 p. m. of 28th	6	30 –	12	14	12	48		
— 30	11	31 p. m. of 29th	6	25 –	14	19	11	49		
— 31	11	4 p. m. of 30th	6	45 –	14	16	11	20		
Nov. - 1	11	16 p. m. of 31st	6	30 –	15	9	11	4		
— 2	11	13 p. m. of 1st	6	25 –	12	27	12	19		
— 3	11	14 p. m. of 2d	6	50 –	13	6	14	55		
— 4	11	6 p. m. of 3d	6	45 –	12	54	15	37		
— 5	11	6 p. m. of 4th	6	30 –	10	34	12	20		
— 6	11	21 p. m. of 5th	6	40 –	12	0	12	20		
— 7	11	24 p. m. of 6th	6	40 –	11	21	13	0		
— 8	†1	30 a. m.	6	15 –	10	10	12	15		
— 9	11	6 p. m. of 8th	6	40 –	14	59	11	5		
— 10	11	20 p. m. of 9th	6	35 –	15	40	13	15		
— 11	11	26 p. m. of 10th	6	55 –	12	34	12	30		
— 12	11	14 p. m. of 11th	6	50 –	15	56	9	30		
— 13	11	19 p. m. of 12th	6	40 –	22	1	11	40	3 h. 35 m.; N.W. winds.	
— 14	11	13 p. m. of 13th	6	55 –	14	17	12	5		
— 15	11	28 p. m. of 14th	6	45 –	17	57	10	52		
— 16	11	55 p. m. of 15th	6	40 –	15	50	11	35		
— 17	3	10 a. m.	6	45 –	12	5	17	0		
— 18	1	42 –	6	45 –	14	48	11	6		
— 19	12	10 –	8	40 –	13	50	10	20		
— 20	11	40 p. m. of 19th	8	10 –	11	50	11	10		
— 21	11	13 p. m. of 20th	6	45 –	13	22	12	53		
— 22	11	26 p. m. of 21st	6	50 –	17	44	11	3		
— 23	11	26 p. m. of 22d	6	35 –	15	19	13	3		
— 24	11	18 p. m. of 23d	6	30 –	17	32	12	0		
— 25	11	24 p. m. of 24th	7	20 –	12	46	12	11		
— 26	11	16 p. m. of 25th	6	40 –	12	24	22	20	- - - -	4 h. 22 m.; S.E. winds, and fog.
— 27	11	40 p. m. of 26th	6	40 –	12	9	13	42		
— 28	11	35 p. m. of 27th	6	50 –	15	30	10	27		
— 29	11	21 p. m. of 28th	6	40 –	15	39	17	50		
— 30	11	11 p. m. of 29th	6	35 –	28	49	11	25	10 h. 15 m.; W.S.W. gale.	
Dec. - 1	11	21 p. m. of 30th	6	20 –	11	20	13	10		
— 2	11	19 p. m. of 1st	6	50 –	15	51	15	32		

(continued)

* Detained in consequence of heavy gale from N. W.

† Packet detained until this hour by fog.

DATE.	TIME LEFT		Number of Hours occupied in the Passage		Mail detained beyond Fixed Time; Length of Detention, and Cause.	
	Hobb's Point.	Waterford.	To Waterford.	To Hobb's Point.	At Waterford.	At Hobb's Point.
1841:	H. M.	H. M.	H. M.	H. M.		
Dec. - 3	11 35 p. m. of 2d	6 40 a. m.	13 35	15 25		
— 4	11 40 p. m. of 3d	6 30 –	30 10	11 8	12 h. 5 m.; W. gales.	
— 5	11 26 p. m. of 4th	7 10 –	17 4	11 2		
— 6	11 23 p. m. of 5th	6 50 –	15 52	11 55		
— 7	11 1 p. m. of 6th	6 50 –	16 44	11 47		
— 8	12 0 p. m. of 7th	6 45 –	23 25	11 10	5 h. 40 m.; N.W. winds.	
— 9	11 57 p. m. of 8th	6 40 –	* - -	13 37		
— 10	11 35 p. m. of 9th	* - -	19 0	* no arrival.	0 h. 55 m. - ditto.	
— 11	11 36 p. m. of 10th	6 35 a. m.	21 34	10 0	3 h. 25 m. - ditto.	
— 12	11 50 p. m. of 11th	6 30 –	19 25	13 5	1 h. 30 m.; W. winds.	
— 13	12 15 a. m.	6 30 –	18 15	10 50	0 h. 45 m. - ditto.	
— 14	11 25 p. m. of 13th	6 40 –	27 20	9 55	9 h. 0 m.; strong N. winds.	
— 15	11 34 p. m. of 14th	6 20 –	23 26	19 55	5 h. 15 m.; W.S.W. winds	1 h. 37 m.; S.W. gales.
— 16	11 28 p. m. of 15th	6 30 –	20 57	12 17	2 h. 40 m.; N.W. gales.	
— 17	11 51 p. m. of 16th	6 30 –	17 9	11 10		
— 18	11 20 p. m. of 17th	6 40 –	14 40	11 2		
— 19	12 6 a. m.	7 38 –	11 19	19 22	- - - -	2 h. 22 m.; easterly winds.
— 20	11 21 p. m. of 19th	7 10 –	12 0	11 33		
— 21	11 28 p. m. of 20th	6 40 –	10 42	11 7		
— 22	11 40 p. m. of 21st	7 15 –	16 40	13 0		
— 23	1 35 a. m.	6 45 –	16 55	12 0		
— 24	12 40 –	7 0 –	13 20	12 5		
— 25	1 35 –	6 45 –	19 40	10 53	3 h. 30 m.; N.W. winds.	
— 26	12 30 –	6 20 –	13 15	12 44		
— 27	11 48 p. m. of 26th	6 28 –	13 2	10 32		
— 28	12 0 p. m. of 27th	6 30 –	14 10	9 48		
— 29	11 40 p. m. of 28th	6 40 –	14 50	11 35		
— 30	12 25 a. m.	6 30 –	12 5	11 2		
— 31	11 50 p. m. of 30th	6 40 –	14 40	9 45		

* Packet returned disabled.

Memorandum.—The time stated in the columns, under the head of detention at Waterford and Hobb's Point, denotes the time of the arrival of the packet after the mail-coach has left for London from this place, and for Dublin from Waterford; so that in each case, although the time the mail-bags were detained by the packet is mentioned, the bags would not, of course, be forwarded until the next day's mail conveyed them, causing a delay of 24 hours.

Hobb's Point,
22 April 1842.

W. H. Higgs,
Commander conducting Packet Service.

MAIL COACH.

Arrives at	Time.	Departs from	Time.
	H. M.		H. M.
Hobb's Point - - - -	10 54 p. m.	Hobb's Point - - -	12 38 a. m.
Waterford from Dublin - -	9 0 a. m.	Waterford for Dublin - -	5 45 p. m.
from Cork - -	5 30 p. m.	for Cork - -	9 30 a. m.
from Limerick - -	5 30 a. m.	for Limerick - -	7 45 p. m.
from Wexford - -	7 30 p. m.	for Wexford - -	7 0 a. m.

Admiralty,
25 April 1842.

H. F. AMEDROZ,
Chief Clerk.

Appendix, No. 3.

Appendix, No. 3.

Hours occupied in the Passage between Liverpool and Kingstown.

A RETURN of the HOURS at which the Contract Steam Packets have left the River *Mersey*, and the Number of Hours occupied in the Passages between *Liverpool* and *Kingstown*, and *Kingstown* and *Liverpool*, each Day since the 1st February 1841, with the Name of each Packet; also, the Number of Times, specifying the Days, the Mail and Passengers have been conveyed by Tender to or from the Steamer outside the Bar of the *Mersey*, and the Days on which no Mail has left *Liverpool*, and the Manner in which the Mail and Passengers are conveyed from the Pier at *Birkenhead* to the Contract Steamer, and the Expense of the same.

DATE.	NAME of PACKET.	Hour of Leaving the River Mersey.		Number of Hours on Passage between Liverpool and Kingstown.		DATE.	Hour of Leaving Kingstown.		Number of Hours on Passage between Kingstown and Liverpool.	
		H.	M.	H.	M.		H.	M.	H.	M.
1841: Febr. 1	Princess	7	45 p. m.	11	25	1841: February 2	5	55 p. m.	14	50
— 2	Prince	8	9 –	11	17	— 3	6	0 –	15	5
— 3	Princess	7	40 –	10	40	— 4	6	5 –	18	40
— 4	Prince	7	25 –	11	0	— 5	6	20 –	26	25
— 5	Princess	7	40 –	11	40	— 6	6	40 –	22	25
— 6	Athlone	7	55 –	12	25	— 7	5	55 –	22	10
— 7	Prince	8	18 –	12	2	— 8	6	13 –	16	42
— 8	Princess	7	40 –	12	15	— 9	6	45 –	12	30
— 9	Athlone	7	33 –	15	7	— 10	5	50 –	13	35
— 10	Prince	7	50 –	14	17	— 11	5	51 –	11	24
— 11	Athlone	8	50 –	12	40	— 12	5	55 –	11	30
— 12	Prince	7	20 –	14	27	— 13	5	50 –	11	39
— 13	Athlone	7	40 –	13	10	— 14	5	57 –	11	13
— 14	Princess	7	37 –	12	28	— 15	5	52 –	11	48
— 15	R. Adelaide	7	50 –	12	55	— 16	5	50 –	13	50
— 16	Princess	7	30 –	11	40	— 17	5	50 –	12	10
— 17	R. Adelaide	7	40 –	14	20	— 18	5	55 –	13	5
— 18	Princess	7	30 –	11	15	— 19	5	53 –	13	44
— 19	Prince	7	24 –	12	43	— 20	5	45 –	11	57
— 20	Princess	7	30 –	11	15	— 21	5	49 –	14	16
— 21	Prince	7	25 –	11	57	— 22	5	47 –	13	38
— 22	R. Adelaide	7	30 –	12	10	— 23	5	55 –	14	45
— 23	Prince	7	25 –	12	7	— 24	5	44 –	12	21
— 24	R. Adelaide	7	20 –	12	10	— 25	5	50 –	11	55
— 25	Prince	8	15 –	14	53	— 26	5	47 –	12	13
— 26	R. Adelaide	10	10 –	14	25	— 27	5	55 –	12	5
— 27	Princess	8	40 –	12	25	— 28	5	48 –	10	52
— 28	R. Adelaide	7	25 –	14	5	March 1	5	55 –	11	40
March 1	Princess	8	– –	12	50	— 2	5	52 –	11	8
— 2	R. Adelaide	7	40 –	15	43	— 3	5	45 –	12	10
— 3	Princess	7	26 –	11	42	— 4	5	52 –	12	3
— 4	Prince	7	20 –	11	48	— 5	5	48 –	12	47
— 5	Princess	7	36 –	11	50	— 6	5	51 –	13	24
— 6	Prince	7	28 –	12	14	— 7	5	45 –	14	25
— 7	Princess	7	30 –	11	15	— 8	5	55 –	14	45
— 8	Prince	7	28 –	12	0	— 9	5	45 –	12	15
— 9	Princess	7	30 –	12	5	— 10	5	50 –	13	45
— 11	Prince	4	0 a. m.	12	34	— 11	5	48 –	11	50
	Princess	7	45 p. m.	12	55	— 12	5	57 –	16	28
— 12	Prince	7	40 –	15	2	— 13	5	54 –	14	8
— 13	Princess	7	35 –	13	55	— 14	5	55 –	12	50
— 14	Prince	7	17 –	13	0	— 15	5	52 –	11	20
— 15	Q. Victoria	7	30 –	12	57	— 16	5	47 –	13	38
— 16	Prince	7	28 –	12	24	— 17	5	56 –	12	4
— 17	Princess	7	. 20 –	11	37	— 18	5	48 –	12	52
— 18	Prince	7	25 –	14	5	— 19	5	57 –	12	18
— 19	Princess	7	30 –	11	57	— 20	5	50 –	13	40
— 20	Q. Victoria	7	50 –	13	5	— 21	5	57 –	14	13
— 21	Princess	7	30 –	11	44	— 22	5	48 –	13	37
— 22	Q. Victoria	7	50 –	13	50	— 23	5	57 –	13	48
— 23	Princess	7	29 –	12	31	— 24	5	52 –	14	18
— 24	Prince	7	35 –	12	45	— 25	5	57 –	11	33
— 25	Princess	7	45 –	11	40	— 26	5	50 –	11	47
— 26	Prince	7	26 –	12	26	— 27	5	46 –	11	9
— 27	Q. Victoria	8	0 –	13	17	— 28	5	47 –	11	56
— 28	Prince	7	30 –	12	11	— 29	5	45 –	10	43
— 29	Q. Victoria	7	37 –	14	48	— 30	5	52 –	11	53
— 30	Prince	7	24 –	20	46	— 31	5	41 –	11	54
— 31	Princess	7	55 –	15	35	April 1	5	55 –	11	45

(*continued*)

Appendix, No. 3.

Hours occupied in the Passage between Liverpool and Kingstown.

DATE.	NAME of PACKET.	Hour of Leaving the River Mersey.		Number of Hours on Passage between Liverpool and Kingstown.		DATE.	Hour of Leaving Kingstown.		Number of Hours on Passage between Kingstown and Liverpool.	
1841:		H.	M.	H.	M.	1841:	H.	M.	H.	M.
April 1	Q. Victoria	7	15 p.m.	13	15	April 2	5	45 p.m.	12	35
— 2	Princess -	7	50 -	11	45	— 3	5	55 -	12	11
— 3	Q. Victoria	7	39 -	12	26	— 4	5	48 -	13	37
— 4	Princess -	7	40 -	10	55	— 5	5	55 -	13	5
— 5	Q. Victoria	7	50 -	11	51	— 6	5	50 -	14	3
— 6	Princess -	7	30 -	11	13	— 7	5	53 -	12	2
— 7	Prince -	7	30 -	13	25	— 8	5	49 -	11	44
— 8	Princess -	7	45 -	12	30	— 9	5	50 -	11	55
— 9	Prince -	7	28 -	12	6	— 10	5	50 -	11	59
— 10	Q. Victoria	7	28 -	12	15	— 11	5	50 -	12	15
— 11	Prince -	7	31 -	12	4	— 12	5	48 -	10	57
— 12	Q. Victoria	7	15 -	12	58	— 13	5	45 -	11	35
— 13	Prince -	7	27 -	12	48	— 14	5	49 -	11	11
— 14	Q. Victoria	7	18 -	13	6	— 15	5	50 -	11	43
— 15	Prince -	7	27 -	12	8	— 16	5	50 -	11	40
— 16	Q. Victoria	7	35 -	12	23	— 17	5	48 -	12	27
— 17	Princess -	7	15 -	12	20	— 18	5	55 -	12	2
— 18	Q. Victoria	7	25 -	14	17	— 19	5	47 -	12	51
— 19	Princess -	7	35 -	12	8	— 20	5	50 -	12	50
— 20	Q. Victoria	7	25 -	11	47	— 21	5	48 -	13	57
— 21	Princess -	7	35 -	11	6	— 22	5	50 -	12	25
— 22	Prince -	7	22 -	11	35	— 23	5	45 -	12	20
— 23	Princess -	7	25 -	11	35	— 24	5	50 -	12	15
— 24	Prince -	7	27 -	12	41	— 25	5	48 -	11	47
— 25	Q. Victoria	7	30 -	15	22	— 26	5	48 -	11	47
— 26	Prince -	7	27 -	13	17	— 27	5	45 -	10	40
— 27	Q. Victoria	7	20 -	17	25	— 28	5	46 -	11	44
— 28	Prince -	7	20 -	12	10	— 29	5	50 -	12	40
— 29	Q. Victoria	7	10 -	11	35	— 30	5	48 -	12	12
— 30	Princess -	7	20 -	10	55	May 1	5	55 -	11	55
May 1	Q. Victoria	7	40 -	11	28	— 2	5	47 -	13	18
— 2	Princess -	8	3 -	11	25	— 3	5	50 -	12	40
— 3	Prince -	7	19 -	10	58	— 4	5	45 -	12	53
— 4	Princess -	7	27 -	11	16	— 5	5	57 -	13	3
— 5	Prince -	7	27 -	11	44	— 6	5	43 -	12	20
— 6	Princess -	7	23 -	11	34	— 7	5	52 -	11	53
— 7	Prince -	7	18 -	11	44	— 8	5	41 -	11	39
— 8	Q. Victoria	7	35 -	12	35	— 9	5	47 -	13	3
— 9	Prince -	7	29 -	13	29	— 10	5	45 -	11	20
— 10	Q. Victoria	7	30 -	13	23	— 11	5	43 -	11	37
— 11	Princess -	7	18 -	12	15	— 12	5	55 -	10	40
— 12	Q. Victoria	7	27 -	12	36	— 13	5	45 -	11	20
— 13	Princess -	7	18 -	11	28	— 14	5	55 -	10	45
— 14	Q. Victoria	7	15 -	12	10	— 15	5	43 -	11	57
— 15	Princess -	7	22 -	11	38	— 16	6	0 -	11	50
— 16	Prince -	7	18 -	12	36	— 17	5	47 -	11	56
— 17	Princess -	7	25 -	12	25	— 18	5	50 -	12	0
— 18	Prince -	7	18 -	12	35	— 19	5	47 -	11	43
— 19	Q. Victoria	7	25 -	12	28	— 20	5	46 -	13	11
— 20	Prince -	7	22 -	11	37	— 21	5	45 -	13	15
— 21	Q. Victoria	7	25 -	11	43	— 22	5	41 -	15	4
— 22	Prince -	7	24 -	14	22	— 23	5	47 -	12	18
— 23	Q. Victoria	7	35 -	12	18	— 24	5	41 -	12	24
— 24	Princess -	7	25 -	11	40	— 25	5	55 -	13	15
— 25	Q. Victoria	7	35 -	12	38	— 26	5	45 -	11	45
— 26	Princess -	7	18 -	12	4	— 27	5	50 -	11	10
— 27	Prince -	7	20 -	12	20	— 28	5	43 -	10	57
— 28	Princess -	7	12 -	11	43	— 29	5	55 -	11	5
— 29	Prince -	7	12 -	11	10	— 30	5	48 -	11	41
— 30	Princess -	7	10 -	10	50	— 31	5	45 -	11	57
— 31	Prince -	7	22 -	11	13	June 1	5	46 -	12	14
June 1	Q. Victoria	7	35 -	12	34	— 2	5	44 -	12	51
— 2	Prince -	7	16 -	11	24	— 3	5	49 -	13	16
— 3	Q. Victoria	7	22 -	12	37	— 4	5	44 -	13	6
— 4	Princess -	7	20 -	11	44	— 5	5	50 -	11	56
— 5	Q. Victoria	7	26 -	12	22	— 6	5	45 -	13	15
— 6	Princess -	7	55 -	11	55	— 7	5	55 -	11	55
— 7	Q. Victoria	7	25 -	12	10	— 8	5	45 -	12	20
— 8	Princess -	7	20 -	11	40	— 9	5	48 -	11	7
— 9	Prince -	7	28 -	11	54	— 10	5	42 -	11	4
— 10	Princess -	7	25 -	12	20	— 11	5	55 -	11	25
— 11	Prince -	7	18 -	11	58	— 12	5	45 -	11	0
— 12	Q. Victoria	7	22 -	12	55	— 13	5	44 -	11	41

Appendix, No. 3.

Hours occupied in the Passage between Liverpool and Kingstown.

DATE.	NAME of PACKET.	Hour of Leaving the River Mersey.	Number of Hours on Passage between Liverpool and Kingstown.	DATE.	Hour of Leaving Kingstown.	Number of Hours on Passage between Kingstown and Liverpool.
1841:		H. M.	H. M.	1841:	H. M.	H. M.
June 13	Prince	7 14 p.m.	12 21	June 14	5 43 p.m.	11 17
— 14	Q. Victoria	7 50 –	13 28	— 15	5 44 –	12 23
— 15	Prince	7 33 –	11 24	— 16	5 43 –	11 53
— 16	Q. Victoria	7 21 –	11 48	— 17	5 43 –	13 7
— 17	Princess	7 26 –	10 49	— 18	5 47 –	12 28
— 18	Q. Victoria	7 35 –	11 38	— 19	5 44 –	14 1
— 19	Princess	7 32 –	11 28	— 20	5 50 –	12 40
— 20	Prince	7 25 –	12 7	— 21	5 43 –	11 50
— 21	Princess	7 42 –	12 23	— 22	5 50 –	11 15
— 22	Prince	7 27 –	12 4	— 23	5 47 –	11 5
— 23	Princess	7 40 –	11 48	— 24	5 53 –	11 2
— 24	Prince	7 16 –	12 9	— 25	5 47 –	12 36
— 25	Q. Victoria	7 20 –	12 55	— 26	5 44 –	11 14
— 26	Prince	7 21 –	12 33	— 27	5 45 –	11 9
— 27	Q. Victoria	7 20 –	12 45	— 28	5 47 –	11 53
— 28	Princess	7 25 –	11 25	— 29	5 55 –	11 45
— 29	Q. Victoria	7 35 –	13 5	— 30	5 45 –	12 25
— 30	Princess	7 30 –	12 40	July - 1	5 50 –	11 50
July - 1	Q. Victoria	7 25 –	12 4	— 2	5 43 –	13 9
— 2	Princess	7 30 –	10 45	— 3	5 50 –	12 0
— 3	Prince	7 24 –	11 48	— 4	5 49 –	12 36
— 4	Princess	7 30 –	11 20	— 5	5 55 –	11 45
— 5	Prince	7 21 –	13 0	— 6	5 45 –	11 40
— 6	Q. Victoria	8 10 –	12 48	— 7	5 48 –	12 10
— 7	Prince	7 30 –	13 2	— 8	5 44 –	11 3
— 8	Q. Victoria	7 35 –	13 10	— 9	5 45 –	11 40
— 9	Prince	7 17 –	12 46	— 10	5 50 –	10 43
— 10	Q. Victoria	7 35 –	15 59	— 11	5 44 –	11 21
— 11	Princess	7 24 –	13 26	— 12	5 47 –	10 31
— 12	Q. Victoria	7 40 –	14 43	— 13	5 45 –	11 35
— 13	Princess	7 35 –	11 47	— 14	5 40 –	11 25
— 14	Prince	7 40 –	11 15	— 15	5 44 –	12 19
— 15	Princess	7 18 –	10 37	— 16	5 45 –	12 51
— 16	Prince	7 18 –	11 15	— 17	5 46 –	12 34
— 17	Princess	7 20 –	10 52	— 18	5 55 –	12 35
— 18	Prince	7 25 –	11 13	— 19	5 43 –	12 37
— 19	Q. Victoria	7 35 –	12 8	— 20	5 47 –	12 55
— 20	Prince	8 14 –	12 18	— 21	5 44 –	11 41
— 21	Q. Victoria	7 35 –	13 33	— 22	5 47 –	11 23
— 22	Princess	7 56 –	13 49	— 23	5 55 –	10 20
— 23	Q. Victoria	7 30 –	14 13	— 24	5 44 –	11 6
— 24	Princess	7 20 –	12 25	— 25	5 57 –	10 18
— 25	Q. Victoria	7 25 –	13 13	— 26	5 47 –	11 28
— 26	Princess	7 15 –	11 55	— 27	5 50 –	10 45
— 27	Prince	7 16 –	16 5	— 28	5 47 –	11 31
— 28	Princess	7 17 –	18 33	— 29	5 50 –	12 10
— 29	Prince	7 23 –	16 8	— 30	5 41 –	13 9
— 30	Q. Victoria	7 30 –	16 38	— 31	5 45 –	12 37
— 31	Prince	7 17 –	13 21	Aug. 1	5 45 –	13 26
Aug. 1	Q. Victoria	7 25 –	12 8	— 2	5 47 –	13 3
— 2	Prince	7 16 –	11 53	— 3	5 51 –	13 54
— 3	Q. Victoria	7 25 –	12 37	— 4	5 45 –	13 0
— 4	Princess	7 25 –	12 0	— 5	5 49 –	11 11
— 5	Q. Victoria	7 15 –	15 49	— 6	5 45 –	12 13
— 6	Princess	8 0 –	12 15	— 7	5 50 –	10 50
— 7	Prince	7 38 –	13 15	— 8	5 56 –	11 2
— 8	Princess	7 20 –	12 10	— 9	5 53 –	10 27
— 9	Prince	7 33 –	15 27	— 10	6 0 –	12 25
— 10	Princess	7 25 –	11 55	— 11	5 55 –	11 5
— 11	Prince	7 24 –	15 16	— 12	5 49 –	11 19
— 12	Q. Victoria	7 10 –	12 33	— 13	5 45 –	13 20
— 13	Prince	7 13 –	11 31	— 14	5 50 –	12 8
— 14	Q. Victoria	7 15 –	12 21	— 15	5 45 –	13 15
— 15	Princess	7 27 –	10 48	— 16	5 55 –	12 45
— 16	Q. Victoria	7 25 –	12 40	— 17	5 48 –	14 40
— 17	Princess	7 25 –	11 20	— 18	5 50 –	12 0
— 18	Q. Victoria	7 17 –	12 43	— 19	5 45 –	13 14
— 19	Princess	7 25 –	11 45	— 20	5 55 –	10 45
— 20	Prince	7 20 –	12 35	— 21	5 49 –	10 56
— 21	Princess	7 15 –	12 5	— 22	5 55 –	10 40
— 22	Prince	7 32 –	14 0	— 23	5 47 –	10 53
— 23	Q. Victoria	7 32 –	14 18	— 24	5 45 –	11 9
— 24	Prince	7 16 –	13 54	— 25	5 45 –	11 0

(continued)

Appendix, No. 3.

Hours occupied in the Passage between Liverpool and Kingstown.

DATE.	NAME of PACKET.	Hour of Leaving the River Mersey.		Number of Hours on Passage between Liverpool and Kingstown.		DATE.	Hour of Leaving Kingstown.		Number of Hours on Passage between Kingstown and Liverpool.	
1841:		H.	M.	H.	M.	1841:	H.	M.	H.	M.
Aug. 25	Q. Victoria	7	20 p.m.	12	50	Aug. 26	5	45 p.m.	12	5
— 26	Prince	7	12 –	11	39	— 27	5	47 –	11	38
— 27	Q. Victoria	7	12 –	12	34	— 28	5	46 –	12	42
— 28	Princess	7	20 –	11	5	— 29	5	55 –	12	0
— 29	Q. Victoria	7	16 –	12	49	— 30	5	45 –	13	15
— 30	Princess	7	20 –	11	25	— 31	5	50 –	12	10
— 31	Prince	7	53 –	11	40	Sept. 1	5	44 –	12	33
Sept. 1	Princess	7	22 –	12	4	— 2	5	50 –	12	5
— 2	Prince	7	25 –	12	5	— 3	5	47 –	13	2
— 3	Princess	7	26 –	12	34	— 4	5	50 –	11	22
— 4	Prince	7	25 –	12	44	— 5	5	45 –	11	58
— 5	Q. Victoria	7	20 –	12	45	— 6	5	55 –	12	5
— 6	Prince	7	15 –	12	15	— 7	5	45 –	10	47
— 7	Q. Victoria	7	25 –	14	25	— 8	5	55 –	11	25
— 8	Princess	7	25 –	12	3	— 9	5	50 –	11	4
— 9	Q. Victoria	7	20 –	13	57	— 10	5	50 –	11	35
— 10	Princess	7	15 –	11	45	— 11	5	46 –	11	58
— 11	Q. Victoria	7	10 –	11	10	— 12	5	35 –	13	20
— 12	Princess	7	15 –	10	40	— 13	5	52 –	12	58
— 13	Prince	7	16 –	11	57	— 14	5	44 –	13	10
— 14	Princess	7	25 –	11	5	— 15	5	35 –	14	0
— 15	Q. Victoria	7	35 –	12	5	— 16	5	47 –	14	24
— 16	Princess	7	25 –	11	40	— 17	5	33 –	12	54
— 17	Prince	7	20 –	12	8	— 18	5	47 –	13	18
— 18	Q. Victoria	7	28 –	11	59	— 19	5	40 –	12	48
— 19	Prince	7	20 –	11	53	— 20	5	46 –	14	14
— 20	Q. Victoria	7	15 –	13	0	— 21	5	38 –	19	12
— 21	Princess	7	25 –	11	45	— 22	5	50 –	11	35
— 22	Q. Victoria	7	20 –	13	20	— 23	5	35 –	12	20
— 23	Princess	7	11 –	12	19	— 24	5	52 –	11	33
— 24	Prince	7	16 –	11	24	— 25	5	49 –	11	51
— 25	Princess	7	17 –	11	3	— 26	5	55 –	12	25
— 26	Prince	7	30 –	11	7	— 27	5	45 –	13	56
— 27	Princess	7	25 –	11	55	— 28	5	55 –	12	25
— 28	Prince	7	27 –	11	33	— 29	5	46 –	12	34
— 29	Q. Victoria	7	22 –	13	38	— 30	5	35 –	14	0
— 30	Prince	7	16 –	12	19	Oct. 1	5	47 –	12	35
Oct. 1	Q. Victoria	7	23 –	12	12	— 2	5	30 –	15	27
— 2	Princess	7	20 –	10	50	— 3	5	55 –	12	0
— 3	Q. Victoria	7	15 –	12	15	— 4	5	35 –	17	0
— 4	Princess	7	20 –	11	50	— 5	5	55 –	12	20
— 5	Q. Victoria	7	37 –	12	33	— 6	5	32 –	12	12
— 6	Princess	7	20 –	12	10	— 7	5	50 –	11	5
— 7	Prince	7	24 –	14	8	— 8	5	45 –	11	15
— 8	Princess	7	30 –	14	20	— 9	5	55 –	11	15
— 9	Prince	7	12 –	13	10	— 10	5	44 –	11	56
— 10	Q. Victoria	7	30 –	13	43	— 11	5	30 –	13	7
— 11	Prince	7	15 –	11	50	— 12	5	45 –	13	15
— 12	Q. Victoria	7	25 –	15	44	— 13	5	30 –	13	35
— 13	Prince	7	32 –	16	13	— 14	5	45 –	14	10
— 14	Q. Victoria	7	33 –	18	52	— 15	5	30 –	14	45
— 15	Princess	7	45 –	14	15	— 16	5	55 –	11	45
— 16	Q. Victoria	8	10 –	15	40	— 17	5	40 –	16	40
— 18	Princess	8	15 a.m.	12	45	— 18	9	35 –	13	15
	Prince	7	32 p.m.	12	43	— 19	5	46 –	10	54
— 19	Princess	7	40 –	16	0	— 20	5	55 –	10	50
— 20	Prince	11	10 –	17	17	— 21	6	16 –	11	12
— 21	Princess	7	30 –	13	0	— 22	5	55 –	12	45
— 22	Prince	7	27 –	13	3	— 23	5	50 –	11	40
— 23	Q. Victoria	7	15 –	13	8	— 24	5	42 –	12	17
— 24	Prince	7	25 –	12	24	— 25	5	53 –	15	7
— 25	Q. Victoria	7	19 –	12	29	— 26	5	50 –	16	18
— 26	Princess	7	25 –	11	10	— 27	6	0 –	14	15
— 27	Q. Victoria	7	47 –	13	13	— 28	5	50 –	14	28
— 28	Princess	7	20 –	11	10	— 29	5	50 –	13	40
— 29	Q. Victoria	7	20 –	11	42	— 30	5	46 –	14	2
— 30	Princess	7	35 –	11	10	— 31	5	55 –	12	15
— 31	Prince	7	18 –	12	58	Nov. 1	5	51 –	12	34
Nov 1	Princess	7	25 –	11	40	— 2	5	49 –	12	36
— 2	Prince	7	30 –	12	33	— 3	5	48 –	12	24
— 3	Q. Victoria	7	27 –	12	31	— 4	5	44 –	12	16
— 4	Prince	7	30 –	12	12	— 5	5	56 –	10	46

Appendix, No. 3.

Hours occupied in the Passage between Liverpool and Kingstown.

DATE.	NAME of PACKET.	Hour of Leaving the River Mersey.		Number of Hours on Passage between Liverpool and Kingstown.		DATE.	Hour of Leaving Kingstown.		Number of Hours on Passage between Kingstown and Liverpool.	
1841:		H.	M.	H.	M.	1841:	H.	M.	H.	M.
Nov. 5	Q. Victoria	7	30 p.m.	13	28	Nov. 6	5	52 p.m.	11	28
— 6	Prince	7	13 -	13	34	— 7	5	48 -	11	22
— 7	Q. Victoria	7	18 -	14	8	— 8	5	47 -	12	2
— 8	Princess	7	22 -	11	43	— 9	5	55 -	12	5
— 9	Q. Victoria	7	17 -	16	27	— 10	5	52 -	12	53
— 10	Princess	7	22 -	11	38	— 11	5	50 -	12	35
— 11	Prince	7	24 -	11	34	— 12	5	46 -	14	14
— 12	Princess	8	0 -	19	30	— 13	5	55 -	13	55
— 13	Prince	7	40 -	11	54	— 14	5	48 -	14	12
— 14	Princess	8	5 -	12	25	— 15	5	55 -	12	45
— 15	Prince	7	50 -	12	23	— 16	5	54 -	12	6
— 16	Q. Victoria	7	25 -	12	25	— 17	5	50 -	13	49
— 17	Prince	7	40 -	11	50	— 18	5	50 -	11	50
— 18	Q. Victoria	8	0 -	12	44	— 19	5	52 -	11	38
— 19	Princess	7	40 -	11	55	— 20	5	52 -	10	45
— 20	Prince	7	48 -	15	19	— 21	5	45 -	11	25
— 21	Princess	7	25 -	13	0	— 22	5	50 -	11	15
— 22	Q. Victoria	7	26 -	17	2	— 23	5	48 -	12	2
— 23	Princess	7	20 -	17	30	— 24	5	50 -	11	55
— 24	Prince	7	12 -	13	53	— 25	5	47 -	14	18
— 25	Princess	7	25 -	11	25	— 26	5	55 -	13	20
— 26	Prince	7	15 -	11	40	— 27	5	52 -	12	45
— 27	Q. Victoria	7	20 -	11	55	— 28	5	50 -	13	50
— 28	Prince	7	20 -	13	13	— 29	5	42 -	14	28
— 29	Q. Victoria	7	25 -	12	20	— 30	5	55 -	14	50
— 30	Prince	7	32 -	14	57	Dec. 1	5	46 -	12	34
Dec. 1	Q. Victorin	7	29 -	12	15	— 2	5	50 -	16	57
— 2	Princess	7	38 -	13	0	— 3	5	48 -	11	2
— 3	Q. Victoria	8	28 -	14	47	— 4	5	50 -	11	8
— 4	Princess	11	50 -	16	26	— 5	5	58 -	11	52
— 5	Prince	7	21 -	14	55	— 6	5	48 -	11	17
— 6	Princess	7	22 -	14	53	— 7	5	50 -	11	10
— 7	Prince	7	55 -	15	31	— 8	5	50 -	12	31
— 8	Princess	7	45 -	15	5	— 9	5	52 -	12	8
— 9	Prince	7	35 -	15	48	— 10	5	49 -	13	6
— 10	Q. Victoria	8	43 -	19	41	— 11	5	55 -	13	42
— 11	Prince	7	48 -	15	8	— 12	5	53 -	13	52
— 12	Q. Victoria	7	30 -	15	37	— 13	5	51 -	15	29
— 13	Princess	7	50 -	16	30	— 14	5	50 -	11	55
— 14	Q. Victoria	7	38 -	16	58	— 15	5	50 -	12	30
— 15	Princess	7	42 -	17	23	— 16	5	50 -	11	50
— 16	Q. Victoria	7	42 -	15	8	— 17	5	50 -	12	10
— 17	Princess	7	35 -	13	10	— 18	6	20 -	11	25
— 18	Prince	7	20 -	12	4	— 19	5	45 -	11	49
— 19	Princess	7	35 -	11	55	— 20	5	50 -	11	10
— 20	Prince	7	32 -	12	29	— 21	5	50 -	11	6
— 21	Q. Victoria	8	14 -	14	26	— 22	5	57 -	11	24
— 22	Prince	7	56 -	13	22	— 23	5	46 -	11	25
— 23	Q. Victoria	7	42 -	15	30	— 24	5	51 -	12	12
— 24	Prince	7	33 -	15	32	— 25	5	47 -	12	13
— 25	Q. Victoria	7	11 -	13	20	— 26	6	6 -	12	49
— 26	Princess	7	30 -	12	0	— 27	5	55 -	13	5
— 27	Q. Victoria	7	24 -	12	42	— 28	5	47 -	14	11
— 28	Princess	7	35 -	11	35	— 29	5	55 -	15	15
— 29	Prince	7	30 -	12	0	— 30	5	50 -	12	33
— 30	Princess	7	39 -	11	51	— 31	5	50 -	11	30
— 31	Prince	7	50 -	12	13	1842: Jan. 1	5	47 -	11	30
1842: Jan. 1	Princess	7	50 -	12	20	— 2	5	50 -	11	0
— 2	Prince	7	26 -	12	17	— 3	5	46 -	12	22
— 3	Q. Victoria	7	28 -	12	38	— 4	5	47 -	11	43
— 4	Prince	7	41 -	12	10	— 5	5	49 -	11	26
— 5	Q. Victoria	7	12 -	11	52	— 6	5	40 -	12	23
— 6	Princess	7	30 -	10	45	— 7	5	47 -	12	8
— 7	Q. Victoria	7	10 -	11	48	— 8	5	49 -	12	58
— 8	Princess	7	20 -	11	14	— 9	5	50 -	12	25
— 9	Q. Victoria	8	2 -	11	54	— 10	5	45 -	14	36
— 10	Princess	7	30 -	11	35	— 11	5	50 -	14	30
— 11	Prince	7	45 -	11	42	— 12	6	0 -	15	30
— 12	Princess	7	20 -	13	36	— 13	5	50 -	13	20

(continued)

Appendix, No. 3.

Hours occupied in the Passage between Liverpool and Kingstown.

DATE.	NAME of PACKET.	Hour of Leaving the River Mersey.	Number of Hours on Passage between Liverpool and Kingstown.	DATE.	Hour of Leaving Kingstown.	Number of Hours on Passage between Kingstown and Liverpool.
1842:		H. M.	H. M.	1842:	P. M.	H. M.
Jan. 13	Prince	8 0 p. m.	11 57	January 14	5 53 p. m.	12 7
— 14	Q. Victoria	7 27 –	13 50	— 15	6 2 –	13 3
— 15	Prince	7 41 –	13 33	— 16	5 52 –	10 55
— 16	Q. Victoria	7 45 –	17 33	— 17	5 48 –	11 40
— 17	Prince	7 30 –	12 33	— 18	5 50 –	10 57
— 18	Q. Victoria	10 30 –	12 52	— 19	5 47 –	11 40
— 19	Princess	7 20 –	12 20	— 20	5 50 –	11 25
— 20	Q. Victoria	7 17 –	13 16	— 21	5 47 –	12 23
— 21	Princess	7 20 –	13 25	— 22	5 55 –	11 50
— 22	Prince	7 20 –	16 52	— 23	5 47 –	12 3
23	Princess	7 25 –	10 40	— 24	5 55 –	12 45
— 24	Prince	7 9 –	14 2	— 25	5 49 –	12 51
— 25	Princess	7 25 –	13 50	— 26	5 57 –	14 33
— 27	Prince	6 40 a. m.	17 12	— 28	0 14 a. m.	10 46
	Q. Victoria	7 25 p. m.	14 38		5 55 p. m.	11 55
— 28	Prince	7 47 –	14 23	— 29	5 53 –	11 59
— 29	Q. Victoria	7 38 –	12 47	— 30	5 55 –	12 5
— 30	Princess	8 7 –	12 25	— 31	5 47 –	10 48
— 31	Q. Victoria	9 6 –	13 5	Feb. 1	5 46 –	11 7
Feb. 1	Princess	7 36 –	13 0	— 2	5 48 –	10 51
— 2	Q. Victoria	7 22 –	12 49	— 3	5 47 –	11 48
— 3	Princess	7 27 –	11 57	— 4	5 47 –	14 19
— 4	Prince	7 10 –	11 32	— 5	5 49 –	12 19
— 5	Princess	7 30 –	11 20	— 6	5 52 –	13 8
— 6	Prince	7 15 –	11 35	— 7	5 47 –	12 53
— 7	Q. Victoria	7 20 –	11 46	— 8	5 46 –	13 44
— 8	Prince	7 30 –	11 35	— 9	5 50 –	12 40
— 9	Q. Victoria	7 30 –	12 41	— 10	5 52 –	14 52
— 10	Prince	7 25 –	15 31	— 11	5 50 –	12 20
— 11	Q. Victoria	7 25 –	14 46	— 12	5 52 –	12 40
— 12	Princess	7 43 –	14 7	— 13	5 50 –	11 35
— 13	Q. Victoria	7 37 –	15 28	— 14	5 47 –	12 38
— 14	Princess	7 25 –	14 16	— 15	5 50 –	10 35
— 15	Prince	7 54 –	12 11	— 16	5 47 –	11 13
— 16	Princess	7 37 –	12 38	— 17	5 55 –	11 5
— 17	Prince	7 19 –	12 36	— 18	5 43 –	11 2
— 18	Princess	7 40 –	12 0	— 19	5 50 –	11 25
— 19	Prince	7 20 –	12 49	— 20	5 49 –	11 18
— 20	Q. Victoria	7 15 –	12 58	— 21	5 46 –	12 14
— 21	Prince	7 20 –	11 38	— 22	5 53 –	12 22
— 22	Q. Victoria	7 14 –	12 35	— 23	5 51 –	13 9
— 23	Princess	7 15 –	11 35	— 24	5 57 –	13 23
— 24	Q. Victoria	7 29 –	12 22	— 25	6 23 –	13 52
— 25	Princess	7 25 –	13 30	— 26	5 53 –	11 52
— 26	Q. Victoria	7 33 –	16 1	— 27	5 42 –	12 43
— 27	Princess	7 25 –	17 30	— 28	5 50 –	12 55
— 28	R. Adelaide	8 55 –	15 52	March 1	5 54 –	10 58

Remarks.—During the period of this Return, the Mails and Passengers have not been conveyed by tender to or from the steamer outside the bar of the Mersey.

On the 10th March 1841, no Contract Mail left the Mersey, in consequence of a thick fog, which detained the "Prince" until 4 a.m., the following day.

On the 17th October 1841, no Contract Mail left the Mersey, in consequence of a severe gale at W.N.W., which detained the "Princess" until 8 h. 15 m. a.m. the following day.

On the 26th January 1842, no Contract Mail left the Mersey, in consequence of hard gales at N.W., which detained the "Prince" until 6 h. 40 m. a.m., the following day; this delay having caused Her Majesty's packet "Medina" to bring away the Prince's proper return mail from Kingstown, on the 27th January, there being no contract departure from thence on that day.

This line of packets do not take mails or passengers from Birkenhead, but from the pier at Liverpool: when the tide will admit of it they come alongside the pier; at other times the mail and passengers are conveyed to the packet by small boats, at the expense of the contractor.

Thomas Bevis, Comm^{r}.

Appendix, No. 4.

Appendix, No. 4.

A RETURN of the Number of PASSENGERS by the CONTRACT STEAM PACKETS, in the Year 1841.

The Admiralty have no means of furnishing this information.

Appendix, No. 5.

Appendix, No. 5.

Mail Steam Packets on the Donaghadee and Portpatrick Stations.

A RETURN showing the Number of MAIL STEAM PACKETS on the *Portpatrick* and *Donaghadee* Stations, the Expenses incurred in Building, and Outfit, and Repairs of the Vessels, and the Expenses of the Establishments, and the Total Disbursements, and the Receipts and Passages, &c. and the Totals of each Charge, from the 1st January 1841 to the 1st January 1842; prepared pursuant to an Order from the Select Committee on Post-Office Communication with *Ireland*, dated the 11th instant.

TWO VESSELS EMPLOYED.

		£.	s.	d.
Expenses incurred in the building, and outfit, and repairs of the vessels		2,155	–	–
Expenses of coals supplied to the vessels		726	–	–
Ditto of the establishments afloat and on shore, &c.		2,855	5	5
	£.	5,736	5	5

Amount received on account of passage-money, freight, &c. - £. 1,032. 18. 9.

Admiralty, Somerset House,
17 May 1842.

J. T. Briggs.

Appendix, No. 6.

Appendix, No. 6.

Report of an Experimental Trip from Kingstown to Holyhead and back.

REPORT of an Experimental Trip made by the PRINCESS ROYAL Steamer from *Kingstown* to *Holyhead*, and from *Holyhead* to *Kingstown*, on 20th June 1842.

Dublin, 20 June 1842.

WE, the undersigned, were passengers on board the Princess Royal steamer, Capt. M'Arthur, on her experimental trip from Kingstown to Holyhead, and back to Kingstown this day. The vessel started from Kingstown 15 minutes past eight o'clock P. M., and arrived at Holyhead in four hours 42 minutes; left Holyhead 34 minutes past one o'clock, and arrived at Kingstown in four hours 28 minutes.

(signed)

Alex. Munro, Colonel Royal Artillery.	Thomas M'Nally.
Philip Crampton, Surgeon-general.	James Hoey.
Wm. Cockburn, Captain H. M. S.	Robt. Colgan.
George Roe, Alderman.	T. F. Card.
John Campbell, Jun.	H. Reid.
Joseph Boyce, Alderman.	John Chambers.
T. Digges La Touche.	W. D. Handcock.
Robert Jones.	T. J. Byrne.
R. W. Gason, High Sheriff Co. Tipperary.	E. Chambers.
Robert Williams.	M. F. Webbe.
Arthur Williams, 10th Hussars.	John Hostager.
William E. Handcock.	John Sloddon.
George Maconchy.	Robert Warren.
William Atkinson, D. L. County Mayo.	Francis Gardiner.
James W. Boyce.	Thomas Hodges.
Thomas Byrne.	Matthew Rice.
Robert Loveley, Jun.	John Elliott.

N. B.—Sir Philip Crampton and Colonel Munro disembarked at Holyhead, the other passengers returned in the Princess Royal to Kingstown. The original signatures are in possession of Sir Edward Borough.

Appendix, No. 6.

Report of an Experimental Trip from Kingstown to Holyhead and back.

JOURNAL kept on board the PRINCESS ROYAL Steam Ship from *Kingstown* to *Holyhead* and back, on 20th June 1842, by *James Smail*, Lieutenant R. N.

H.	K.	F.	WIND.	WEATHER.	RATE OF ENGINE.	COURSE.	REMARKS.
9	12	–	S. S. W.	Mod. & cloudy	16	E. S. E.	A. M. At 8. 6. proceeded from wooden jetty, at 8. 11. passed pier head; 8. 49. passed Kish light-ship, at 10. 45. made Holyhead Mountain S. E. by E.
10	12	4	- -	- - -	17		
11	12	4	- -	- - -	17 ½		
12	12	4	- -	- - -	17 ¾		
1	12	4	S. S. W.	Mod. and fine.	17 ¾	E. S. E.	P. M. At 0. 52. arrived at Holyhead; at 1. 34. proceeded for Kingstown; at 5. 29. passed Kish light-ship; at 6. 3. passed pier head. Time taken from pier head to pier head: To Holyhead 4 h. 41 m.; to Kingstown 4 h. 29 m. I have to observe the tide was against the vessel both ways, and retarded her at least a quarter of an hour going, and about 10 minutes returning.
2	12	4	- -	- - -	—	W.N.W.	
3	12	4	- -	- - -	—		
4	12	4	- -	- - -	—		
5	12	6	- -	- - -	—		
6	12	6	- -	- - -	—		

(signed) *James Smail*,
Lieutenant R. N.

Appendix, No. 7.

ABSTRACT of a RETURN from the GENERAL POST OFFICE, showing the ARRIVAL and DEPARTURE of the *Bristol* and *Carmarthen* Mail at the *Aust Ferry*, in the Year 1841; specifying on each day whether the Mail was forwarded across by an Open Boat or in the Steamer; also a similar RETURN for the UP-MAIL from *Carmarthen* to *Bristol*.

DOWN MAIL.

1841.	STEAMER.				SAILING BOAT.				OPEN BOAT.			
	Number of Passages.	Time on the Passage.			Number of Passages.	Time on the Passage.			Number of Passages.	Time on the Passage.		
		Average.	Minimum.	Maximum		Average.	Minimum.	Maximum.		Average.	Minimum.	Maximum.
		min.	min.	hrs. min.		min.	min.	hrs. min.		min.	min.	hrs. min.
January -	22	40	22	0 52	4	45	45	0 51	5	39 ½	27	0 51
February -	18	45	17	1 43	7	46 ½	30	1 27	2	39 ½	37	0 42
March -	20	40	17	1 37	7	37	27	0 44	4	37	32	0 49
April -	25	37 ½	24	0 52	5	36	32	0 45	—	—	—	—
May -	22	36	22	1 2	7	39	32	0 57	2	47	37	0 57
June -	24	36 ½	25	0 52	5	42	32	0 48	—	—	—	—
July -	24	34 ½	22	0 59	6	39	35	0 47	1	42	—	—
August -	30	38	27	0 52	1	55	—	—	—	—	—	—
September	27	33	19	0 52	2	31	30	0 32	1	31	—	—
October -	23	39	27	1 2	4	30	21	0 37	4	46	27	1 17
November	28	38 ½	14	0 52	2	40	33	0 47	—	—	—	—
December	25	42	32	0 55	5	47	42	0 50	—	—	—	—
	288	Aver. 38⅓	from 17	to 1 43	55	Aver. 37	from 21	to 1 27	19	Aver. 41	from 27	to 1 17

UP MAIL.

1841.	STEAMER.				SAILING BOAT.				OPEN BOAT.			
	Number of Passages.	Time on the Passage.			Number of Passages.	Time on the Passage.			Number of Passages.	Time on the Passage.		
		Average.	Minimum.	Maximum.		Average.	Minimum.	Maximum.		Average.	Minimum.	Maximum.
		min.	min.	hrs. min.		min.	min.	hrs. min.		min.	min.	hrs. min.
January -	15	38	24	0 58	10	36	26	1 19	6	32	20	0 39
February -	11	44 ½	26	0 46	12	53	21	1 22	4	38 ½	35	0 40
March -	14	36	26	0 55	8	31 ½	23	0 44	9	43 ½	26	1 57
April -	20	32 ½	26	1 14	4	26 ½	26	0 34	6	30	22	0 36
May -	14	35 ½	29	0 54	14	36 ½	29	1 39	3	30 ½	30	0 32
June -	18	31 ½	26	0 39	10	27	14	0 34	1	30	—	—
July -	19	30 ½	24	0 39	12	32	25	0 38	—	—	—	—
August -	20	33 ½	29	0 51	11	33 ½	30	0 44	—	—	—	—
September	21	31 ½	29	0 38	6	30	- -	- -	3	31 ½	30	0 34
October -	16	32	30	0 44	14	32	26	0 47	1	34	—	—
November	18	34 ½	30	0 45	3	42	34	0 46	9	36 ½	30	0 50
December	19	36 ½	30	0 50	7	33	30	0 45	4	43	30	1 2
	205	Aver. 34⅔	from 24	to 1 14	111	Aver. 34	from 14	to 1 39	46	Aver. 35	from 22	to 1 57

N.B.—The Time occupied on the Passage is calculated from the Arrival of the Mail on one side to its Departure from the other side of the Severn.

Appendix, No. 8.

(IRELAND.)—A RETURN of the Hour at which the *Scotch* Mail has been received at the *Belfast* Post Office, each Day since the 1st day of January 1841; and the Number of Days, specifying them, on which the *Londonderry* Mail has left *Belfast* without the *Scotch* Mail.

DATE.	Hour of Arrival at Belfast.	DATE.	Hour of Arrival at Belfast.	DATE.	Hour of Arrival at Belfast.	DATE.	Hour of Arrival at Belfast.
1841:	H. M.	1841:	H. M.	1841:	H. M.	1841:	H. M.
January - 1	1 23 p.m.	January 31	11 55 a.m.	March - 1	1 13 p.m.	March - 31	1 0 p.m.
— 2	12 15 -			— 2	12 50 -		
— 3	12 15 -	February 1	1 0 p.m.	— 3	12 25 -	April - 1	12 18 -
— 4	1 23 -	— 2	11 40 a.m.	— 4	11 40 -	— 2	12 58 -
— 5	1 0 -	— 3	1 38 p.m.	— 5	12 40 -	— 3	11 45 a.m.
— 6	1 14 -	— 4	12 0 noon	— 6	12 15 -	— 4	12 55 p.m.
— 7	1 33 -	— 5	11 45 a.m.	— 7	1 18 -	— 5	11 25 a.m.
— 8	2 0 -	— 6	12 10 p.m.	— 8	12 30 -	— 6	12 23 p.m.
— 9	1 8 -	— 7	12 55 -	— 9	12 8 -	— 7	11 43 a.m.
— 10	1 50 -	— 8	1 28 -	— 10	11 40 -	— 8	1 11 p.m.
— * 11	2 13 -	— 9	12 0 noon	— 11	11 55 -	— 9	11 13 a.m
— 12	1 30 -	— 10	1 18 p.m.	— 12	11 40 a.m.	— 10	11 18 -
— * 13	2 10 -	— 11	12 33 -	— 13	11 40 -	— 11	11 3 -
— 14	1 0 -	— 12	1 38 -	— 14	12 15 p.m.	— 12	11 3 -
— 15	1 0 -	— 13	1 25 -	— 15	12 18 -	— 13	11 13 -
— 16	2 0 -	— 14	12 33 -	— 16	11 38 a.m.	— 14	11 38 -
— * 17	2 15 -	— 15	1 3 -	— 17	12 25 p.m.	— 15	11 48 -
— 18	1 0 -	— 16	1 33 -	— 18	11 45 a.m.	— 16	11 33 -
— 19	12 25 -	— 17	12 30 -	— 19	1 33 p.m.	— 17	11 8 -
— 20	1 30 -	— * 18	2 45 -	— 20	12 23 -	— 18	12 30 p.m.
— 21	12 53 -	— 19	12 55 -	— 21	1 23 -	— 19	12 33 -
— * 22	2 38 -	— 20	1 0 -	— 22	12 15 -	— 20	11 33 a.m.
— * 23	2 25 -	— 21	12 20 -	— 23	1 30 -	— 21	12 5 p.m.
— * 24	2 12 -	— 22	1 36 -	— 24	1 28 -	— 22	10 53 a.m.
— 25	1 45 -	— 23	1 45 -	— 25	1 28 -	— 23	11 8 -
— * 26	2 33 -	— 24	12 35 -	— 26	11 33 a.m.	— 24	11 11 -
— 27	12 58 -	— 25	12 10 -	— 27	12 10 p.m.	— 25	11 18 -
— 28	1 38 -	— 26	12 40 -	— 28	11 58 a.m.	— 26	12 28 p.m.
— 29	12 15 -	— 27	12 18 -	— 29	11 29 -	— 27	12 48 -
— 30	12 0 noon	— 28	12 38 -	— 30	12 55 p.m.	— 28	11 30 a.m.

(*continued*)

DATE.	Hour of Arrival at Belfast.	DATE.	Hour of Arrival at Belfast.	DATE.	Hour of Arrival at Belfast.	DATE.	Hour of Arrival at Belfast.
1841:	H. M.	1841:	H. M.	1841:	H. M.	1841:	H. M.
April - 29	11 0 a.m.	July - 11	11 23 a.m.	September 22	10 58 a.m.	December 4	11 5 a.m.
— 30	10 33 -	— 12	1 48 p.m.	— 23	11 3 -	— 5	12 43 p.m.
May - 1	10 50 -	— 13	11 35 a.m.	— 24	11 0 -	— 6	1 55 -
— 2	10 50 -	— 14	11 35 -	— 25	10 53 -	— 7	12 5 -
— 3	10 58 -	— 15	12 8 p.m.	— 26	11 13 -	— 8	1 16 -
— 4	11 3 -	— 16	10 52 a.m.	— 27	10 48 -	— 9	11 18 a.m.
— 5	11 33 -	— 17	10 45 -	— 28	12 0 -	— 10	1 50 p.m.
— 6	12 8 p.m.	— 18	11 23 -	— 29	11 55 -	— 11	1 55 -
— 7	12 55 -	— 19	10 18 -	— 30	12 8 p.m.	— 12	1 48 -
— 8	10 43 a.m.	— 20	10 58 -	October 1	12 0 noon	— 13	1 0 -
— 9	11 3 -	— 21	11 3 -	— 2	11 18 a.m.	— 14	1 50 -
— 10	12 18 p.m.	— 22	11 10 -	— 3	10 53 -	— *15	5 35 -
— 11	11 53 a.m.	— 23	10 58 -	— 4	11 3 -	— *16	2 23 -
— 12	11 10 -	— 24	10 48 -	— 5	11 13 -	— 17	12 20 -
— 13	11 0 -	— 25	10 43 -	— 6	11 23 -	— 18	12 8 -
— 14	10 44 -	— 26	10 20 -	— 7	11 28 -	— 19	11 48 a.m.
— 15	10 41 -	— 27	11 15 -	— 8	11 50 -	— 20	11 25 -
— 16	11 30 -	— 28	11 48 -	— 9	11 25 -	— 21	11 23 -
— 17	12 5 p.m.	— 29	11 58 -	— 10	1 0 p.m.	— 22	11 43 -
— 18	12 0 noon	— 30	11 8 -	— 11	1 26 -	— 23	12 18 p.m.
— 19	12 28 p.m.	— 31	11 23 -	— 12	10 58 a.m.	— 24	1 41 -
— 20	11 53 a.m.	August - 1	11 55 -	— 13	11 43 -	— 25	2 0 -
— 21	2 5 p.m.	— 2	10 55 -	— 14	1 38 p.m.	— 26	12 10 -
— 22	12 45 -	— 3	11 25 -	— 15	1 21 -	— 27	11 43 a.m.
— 23	10 55 a.m.	— 4	10 55 -	— *16	3 25 -	— 28	12 23 p.m.
— 24	10 28 -	— 5	11 38 -	— 17	2 0 -	— 29	11 38 a.m.
— 25	10 38 -	— 6	11 58 -	— *18	2 55 -	— 30	11 20 -
— 26	11 0 -	— 7	10 58 -	— 19	12 58 -	— 31	11 35 -
— 27	10 48 -	— 8	11 2 -	— *20	3 14 -	1842:	
— 28	11 45 -	— 9	11 10 -	— 21	12 0 noon	January - 1	11 58 a.m.
— 29	11 20 -	— 10	12 10 p.m.	— 22	12 3 p.m.	— 2	11 45 -
— 30	10 48 -	— 11	10 35 a.m.	— 23	12 18 -	— 3	12 5 p.m.
— 31	11 8 -	— 12	11 0 -	— 24	10 53 a.m.	— 4	11 8 a.m.
June - 1	11 0 -	— 13	11 25 -	— 25	11 51 -	— 5	11 40 -
— 2	11 23 -	— 14	11 8 -	— 26	11 0 -	— 6	11 38 -
— 3	12 3 p.m.	— 15	12 3 p.m.	— 27	10 38 -	— 7	11 20 -
— 4	11 20 a.m.	— 16	11 35 a.m.	— 28	11 0 -	— 8	12 5 p.m.
— 5	11 33 -	— 17	1 8 p.m.	— 29	11 23 -	— 9	1 12 -
— 6	11 0 -	— 18	10 43 a.m.	— 30	10 38 -	— 10	11 30 a.m.
— 7	1 0 p.m.	— 19	11 25 -	— 31	10 53 -	— 11	12 0 noon.
— 8	10 43 a.m.	— 20	10 53 -	November 1	11 38 -	— 12	12 5 p.m.
— 9	11 18 -	— 21	10 53 -	— 2	10 43 -	— 13	1 8 -
— 10	11 0 -	— 22	11 18 -	— 3	11 38 -	— 14	1 58 -
— 11	10 55 -	— 23	11 30 -	— 4	11 10 -	— 15	1 23 -
— 12	11 3 -	— 24	11 3 -	— 5	11 8 -	— 16	1 43 -
— 13	11 5 -	— 25	11 8 -	— 6	1 20 p.m.	— 17	1 8 -
— 14	10 40 -	— 26	11 53 -	— 7	11 58 a.m.	— 18	1 10 -
— 15	11 1 -	— 27	11 8 -	— 8	12 28 p.m.	— 19	1 56 -
— 16	11 3 -	— 28	11 12 -	— 9	1 10 -	— 20	1 38 -
— 17	11 10 -	— 29	11 3 -	— 10	12 58 -	— 21	1 3 -
— 18	10 53 -	— 30	11 33 -	— 11	11 48 a.m.	— *22	4 10 -
— 19	11 43 -	— 31	11 53 -	— 12	12 38 p.m.	— 23	11 43 a.m.
— 20	11 3 -	September 1	11 48 -	— 13	12 23 -	— 24	12 12 p.m.
— 21	11 38 -	— *2	2 43 p.m.	— 14	12 28 -	— 25	12 13 -
— 22	11 50 -	— 3	11 13 a.m.	— 15	11 3 a.m.	— 26	1 0 -
— 23	11 5 -	— 4	10 48 -	— 16	11 20 -	— *27	2 45 -
— 24	10 35 -	— 5	11 3 -	— 17	11 18 -	— 28	1 41 -
— 25	11 13 -	— 6	10 48 -	— 18	11 55 -	— 29	12 33 -
— 26	10 20 -	— 7	11 13 -	— 19	12 0 noon	— 30	12 0 noon.
— 27	11 15 -	— 8	12 15 -	— 20	11 10 a.m.	— 31	11 45 a.m.
— 28	11 40 -	— 9	11 8 -	— 21	11 45 -	February 1	12 3 p.m.
— 29	11 58 -	— 10	11 38 -	— 22	12 5 p.m.	— 2	12 35 -
— 30	11 8 -	— 11	11 26 -	— 23	1 53 -	— 3	11 55 a.m.
July - 1	12 0 noon	— 12	11 18 -	— 24	1 33 -	— 4	12 45 p.m.
— 2	11 10 a.m.	— 13	10 43 -	— 25	11 40 a.m.	— 5	12 20 -
— 3	11 25 -	— 14	11 8 -	— 26	11 10 -	— 6	11 35 a.m.
— 4	11 23 -	— 15	11 25 -	— 27	11 41 -	— 7	11 33 -
— 5	10 33 -	— 16	12 33 p.m.	— 28	11 25 -	— 8	11 35 -
— 6	11 18 -	— 17	10 48 a.m.	— 29	11 48 -	— 9	11 50 -
— 7	11 23 -	— 18	10 51 -	— 30	11 28 -	— 10	12 0 noon
— 8	11 30 -	— 19	10 53 -	December 1	12 8 p.m.	— 11	1 33 p.m.
— *9	9 43 p.m.	— 20	10 58 -	— 2	11 48 a.m.	— 12	1 0 -
— 10	11 0 a.m.	— 21	11 13 -	— 3	11 18 -	— *13	2 50 -

DATE.	Hour of Arrival at Belfast.	DATE.	Hour of Arrival at Belfast.	DATE.	Hour of Arrival at Belfast.	DATE.	Hour of Arrival at Belfast.
1842:	H. M.	1842:	H. M.	1842:	H. M.	1842:	H. M.
February 14	12 25 p.m.	March 11	12 30 p.m.	April - 5	10 55 a.m.	May - 1	11 8 a.m.
— 15	1 55 -	— 12	12 50 -	— 6	11 20 -	— 2	11 5 -
— 16	1 8 -	— 13	12 35 -	— 7	11 0 -	— 3	10 55 -
— 17	12 25 -	— 14	11 30 a.m.	— 8	10 50 -	— 4	11 11 -
— 18	11 50 a.m.	— 15	11 25 -	— 9	11 15 -	— 5	11 55 -
— 19	12 30 p.m.	— 16	11 36 -	— 10	10 55 -	— 6	12 28 p.m.
— 20	1 33 -	— 17	11 46 -	— 11	11 35 -	— 7	11 52 a.m.
— 21	11 43 a.m.	— 18	2 3 p.m.	— 12	10 50 -	— 8	11 30 -
— 22	12 8 p.m.	— 19	1 36 -	— 13	10 40 -	— 9	11 40 -
— 23	12 0 noon	— 20	11 3 a.m.	— 14	10 50 -	— 10	10 55 -
— 24	10 50 a.m.	— 21	10 56 -	— 15	10 55 -	— 11	11 40 -
— 25	11 33 -	— 22	11 22 -	— 16	10 55 -	— 12	11 8 -
— 26	1 10 p.m.	— 23	10 36 -	— 17	11 0 -	— 13	10 53 -
— * 27	8 20 -	— 24	10 58 -	— 18	11 12 -	— 14	11 10 -
— * 28	9 5 -	— 25	11 45 -	— 19	11 5 -	— 15	11 3 -
		— 26	1 55 p.m.	— 20	11 0 -	— 16	10 45 -
March - 1	1 20 -	— 27	12 5 -	— 21	10 42 -	— 17	11 0 -
— 2	12 26 -	— 28	12 0 noon	— 22	10 36 -	— 18	11 18 -
— 3	11 48 a.m.	— 29	11 43 a.m.	— 23	10 38 -	— 19	10 56 -
— 4	12 58 p.m.	— 30	12 0 noon	— 24	11 25 -	— 20	11 3 -
— 5	11 53 a.m.	— 31	1 15 p.m.	— 25	10 58 -	— 21	10 58 -
— 6	11 58 -			— 26	11 3 -	— 22	10 48 -
— 7	12 0 noon	April - 1	11 30 a.m.	— 27	11 13 -	— 23	10 58 -
— 8	1 0 p.m.	— 2	11 15 -	— 28	11 0 -	— 24	11 53 -
— 9	2 3 -	— 3	11 15 -	— 29	11 15 -	— 25	10 50 -
— 10	1 26 -	— 4	10 56 -	— 30	11 5 -	— 26	10 40 -

An Account of the Days, in the Year 1841, that the Mail Coach left *Portpatrick* for *Glasgow* without the *Irish* Mail.

Number of Days - - - 33; viz.

January - - - 3
— 4
— 5
— 15
— 16
February - - - 3
— 4
— 5
— 6
February - - - 7
— 8
— 9
— 10
— 11
— 13
— 14
— 15
February - - - 17
— 18
— 19
— 20
— 21
— 22
— 24
— 25
February - - - 26
— 27
March - - - 4
— 5
— 9
— 31
July - - - 9
— 14

The Number of Days, specifying them, on which the *Londonderry* Mail has left *Belfast* without the *Scotch* Mail.

The Number of Days - - - 20; viz.

1841:
January - - - 11
— 13
— 17
— 22
— 23
1841:
January - - - 24
— 26
February - - - 18
July - - - 9
September - - - 2
1841:
October - - - 16
— 18
— 20
December - - - 15
— 16
1842:
January - - - 22
— 27
February - - - 13
— 27
— 28

General Post Office,
25 June 1842.

W. L. Maberly,
Secretary.

Appendix, No. 9.

Appendix, No. 9.

Memorial of Grand Jury of the County of Antrim.

MEMORIAL of Grand Jury of the County of *Antrim*, respecting the Post Communication with *Ireland*.

To the Lords Commissioners of Her Majesty's Treasury, &c. &c. Treasury Chambers, London.

My Lords,

We, the Grand Jury of the county of Antrim, assembled at the Lent Assizes, being residents and principal landholders of the county of Antrim, beg to bring before your Lordships

Appendix, No. 9.

Memorial of Grand Jury of the County of Antrim.

ships certain great inconveniences to which we are subjected, in consequence of recent changes which have been made in the dispatch, from the town of Belfast, of the northern mail.

The town of Belfast, as your Lordships no doubt are aware, is the great commercial emporium of the north of Ireland, and the port from which by far the greatest imports and exports of any other town in Ireland, in connexion with Great Britain, take place; consequently, whatever retards or accelerates the means of quick intercourse, by the post-office dispatch, between that town and the interior districts of Ulster, must benefit or injure both the public and private interests.

That, latterly, the district post-office surveyor, with the view of securing, as he alleges, the more speedy dispatch of the Scotch mail, on the Derry line, has caused the mail formerly dispatched from Belfast to Derry at nine o'clock, a. m., to be detained till two o'clock, p. m.; thereby preventing, on account of the late arrival, all deliveries on the same day, beyond Ballymoney, on the entire line to the city of Derry; thereby subjecting the great commercial town of Coleraine to the greatest inconvenience, in consequence of its merchants being subject by the change to the loss of an entire day. In Newtownlimavady, in Derry, and in all the connecting branches along that great manufacturing line, the same loss and inconvenience are experienced.

That by way of showing the inconvenience of the recent change, we respectfully submit one fact: a letter posted in Belfast, in the morning, Randalstown (16 miles distance), or from Toome (22 miles), does not reach its destination till the afternoon of the next day; being about 24 hours in travelling that distance. But, in fact, the letters from Belfast for those towns, by the Derry mail, lie in the post-office of Antrim all night, and until 12 o'clock next day. We also submit that similar inconveniences occur at Dervock, Bushmills, Ballycastle, and other towns north of Ballymena, creating a delay of 24 hours beyond the former arrangement.

We beg to inform your Lordships, that, by way of securing a more speedy delivery of the Dublin and English mails, cars have been established, branching off, inland, at Banbridge; travelling through Antrim to Ballymena, and having branches to Templepatrick and Portglenone; also from Garvock to Ballymoney, from Derry to Muff and Newtownlimavady; thereby a great additional expense has been added to the post-office department, without any adequate return; for by an early dispatch from Belfast, the extra cost of this new arrangement would be saved, and an earlier delivery secured.

We respectfully submit, that, even if the object proposed, namely, the early delivery of the Scotch mail on the north line, were attained, the advantages resulting from it would not be a tenth of the benefit which the public would derive from a more speedy delivery from the town of Belfast.

But we have to state, that even the delay now made, which creates such inconvenience, does not secure the object proposed, namely, the early delivery of the Scotch mail in Derry; the uncertainty of its arrival at Belfast is so proverbial, that no one calculates on it.

We have further to state that, at present, the Scotch mail arrives in Derry in the middle of the night, and, consequently, there is no delivery till next morning. Now, the Scotch mail, which arrives in Belfast after 2 o'clock, p. m., too late for the Derry mail, is dispatched that evening by the Enniskillen mail, branching off at Monaghan, and arriving in Derry in the middle of the next day, only a few hours after the morning delivery from Belfast: thus the people of Derry gain but two or three hours by the present arrangement, whilst, for this trifling accommodation, a whole line of country, extending for nearly 90 English miles, through one of the first manufacturing districts in Ireland, is subjected to the greatest loss and inconvenience.

We, having attentively considered what arrangements would be most likely to remedy these grievances, and to secure the greatest share of public benefit, respectfully submit that the Derry mail should be dispatched from Belfast, on the arrival in the morning of the Dublin mail, at half-past eight o'clock; whereby there would be a day delivery on the entire line to Derry, where the mail would arrive at half-past seven in the evening; and that, in returning, the mail from Derry to Belfast should be dispatched from Derry at seven o'clock in the morning; thus, all the letters posted along that line would be in Belfast same evening, in time for the dispatch of the Dublin and English mails.

Memorialists beg further to say, that a very large sum (little less than 70,000 *l.*) has lately been expended in making a perfect road from Belfast to Coleraine for the purpose of facilitating the communication, and expediting travelling of all kinds.

We do most ardently and respectfully entreat your Lordships' most serious attention to this important subject, respectfully submitting that the change we now pray for will greatly benefit the public at large, without causing any increase to the public expenditure.

We have, &c.

(signed) *Geo. Macartney*, Foreman,
(for self and fellows).

Grand Jury Room, Lent Assizes, 1840.

Appendix, No. 10.

STATEMENT, showing the TIME occupied in the Circulation of LETTERS from a few Selected Towns in *England*, to *Waterford* and *Cork*, by *Hobb's Point*, *Holyhead*, *Birkenhead*, and *Liverpool*.

BY HOBB'S POINT.

Departs from	Arrives at	Time Occupied	
		H.	M.
Bristol, 6 a.m., Monday - -	Waterford, 12 noon, Tuesday -	30	0
Ditto, 6 a.m., Monday - -	Cork, 8 a.m., Wednesday -	50	0
Dartmouth, 12 10 p.m., Monday	Waterford, 12 noon, Wednesday	47	50
Ditto - - 12 10 p.m., Monday	Cork, 8 a.m., Thursday - -	67	50
Falmouth, 4 53 a.m., Monday -	Waterford, 12 noon, Wednesday	55	7
Ditto - 7 4 p.m., Monday -	Ditto - - 12 noon, Thursday -	64	50
Ditto - 4 53 a.m., Monday -	Cork, 8 a.m., Thursday - -	75	7
Ditto - 7 4 p.m., Monday -	Ditto, 8 a.m., Friday - -	84	56
London, 8 p.m., Monday - -	Waterford, 12 noon, Wednesday	40	0
Ditto, 8 p.m., Monday - -	Cork, 8 a.m., Thursday - -	60	0
Newport, 9 52 a.m., Monday -	Waterford, 12 noon, Tuesday -	26	8
Ditto, 9 52 a.m., Monday -	Cork, 8 a.m., Wednesday -	46	8
Portsmouth, 8 15 p.m., Monday	Waterford, 12 noon, Thursday	63	45
Ditto - - 8 15 p.m., Monday	Cork, 8 a.m., Friday - -	83	45
Southampton, 12 2 mid. Monday	Waterford, 12 noon, Thursday	59	58
Ditto - - 12 2 mid. Monday	Cork, 8 a.m., Friday - -	79	58
Swansea, 4 19 p.m., Monday -	Waterford, 12 noon, Tuesday -	19	41
Ditto, 4 19 p.m., Monday -	Cork, 8 a.m., Wednesday -	39	41

BY HOLYHEAD.

Departs from	Arrives at	Time Occupied	
		H.	M.
Bristol, 3 7 p.m., Monday -	Waterford, 9 a.m., Thursday -	65	53
Ditto, 3 7 p.m., Monday -	Cork, 8 a.m., Thursday - -	64	53
Dartmouth, 12 10 p.m., Monday	Waterford, 9 a.m., Friday -	92	50
Ditto - - 12 10 p.m., Monday	Cork, 8 a.m., Friday - -	91	50
Falmouth, 7 4 p.m., Monday -	Waterford, 9 a.m., Friday -	85	56
Ditto - 7 4 p.m., Monday -	Cork, 8 a.m., Friday - -	84	56
London, 8 p.m., Monday -	Waterford, 9 a.m., Thursday -	61	0
Ditto, 8 p.m., Monday -	Cork, 8 a.m., Thursday - -	60	0
Newport, 2 7 p.m., Monday -	Waterford, 9 a.m., Thursday -	88	53
Ditto - 2 7 p.m., Monday -	Cork, 8 a.m., Thursday - -	65	53
Portsmouth, 7 50 a.m., Monday	Waterford, 9 a.m., Thursday -	73	10
Ditto - - 7 50 a.m., Monday	Cork, 8 a.m., Thursday - -	72	10
Southampton, 9 a.m., Monday	Waterford, 9 a.m., Thursday -	72	0
Ditto - - - 9 a.m., Monday	Cork, 8 a.m., Thursday - -	71	0
Swansea, 8 5 a.m., Monday -	Waterford, 9 a.m., Thursday -	72	55
Ditto - 8 5 a.m., Monday -	Cork, 8 a.m., Thursday - -	71	55

BY BIRKENHEAD.

Departs from	Arrives at	Time Occupied	
		H.	M.
Bristol, 3 7 p.m., Monday -	Waterford, 9 a.m., Wednesday	41	53
Ditto, 3 7 p.m., Monday -	Cork, 3 30 p.m., Wednesday -	48	23
Ditto, 8 20 a.m., Monday -	Waterford, 9 a.m., Wednesday	48	40
Ditto, 8 20 a.m., Monday -	Cork, 3 30 p.m., Wednesday -	55	10
Falmouth, 7 4 p.m., Monday -	Waterford, 9 a.m., Thursday -	61	56
Ditto - 7 4 p.m., Monday -	Cork, 3 30 p.m., Thursday -	68	26
London, 8 p.m., Monday -	Waterford, 9 a.m., Wednesday	37	0
Ditto, 8 p.m., Monday -	Cork, 3 30 p.m., Wednesday -	43	30
Newport, 2 7 p.m., Monday -	Waterford, 9 a.m., Wednesday	42	53
Ditto - 2 7 p.m., Monday -	Cork, 3 30 p.m., Wednesday -	49	23
Portsmouth, 7 50 a.m., Monday	Waterford, 9 a.m., Wednesday	49	10
Ditto - - 7 50 a.m., Monday	Cork, 3 30 p.m., Wednesday -	55	40
Southampton, 9 a.m., Monday	Waterford, 9 a.m., Wednesday	48	0
Ditto - - - 9 a.m., Monday	Cork, 3 30 p.m., Wednesday -	54	30
Swansea, 8 5 a.m., Monday -	Waterford, 9 a.m., Wednesday	48	55
Ditto - 8 5 a.m., Monday -	Cork, 3 30 p.m., Wednesday -	55	25

BY LIVERPOOL.

Departs from	Arrives at	Time Occupied	
		H.	M.
Bristol, 1 a.m., Monday - -	Waterford, 9 a.m., Wednesday	56	0
Ditto, 1 a.m., Manday - -	Cork, 8 a.m., Wednesday -	55	0
Dartmouth, 12 10 noon, Monday	Waterford, 9 a.m., Thursday -	68	50
Ditto - - 12 10 noon, Monday	Cork, 8 a.m., Thursday - -	67	50
Falmouth, 4 53 a.m., Monday	Waterford, 9 a.m., Thursday -	76	7
Ditto - - 4 53 a.m., Monday	Cork, 8 a.m., Thursday - -	75	7
London, 9 15 a.m., Monday -	Waterford, 9 a.m., Wednesday	47	45
Ditto, 9 15 a.m., Monday -	Cork, 8 a.m., Wednesday -	46	45
Portsmouth, 9 30 p.m., Monday	Waterford, 9 a.m., Thursday -	59	30
Ditto - - - 9 30 p.m., Monday	Cork, 8 a.m., Thursday - -	58	30
Southampton, 2 14 a.m., Monday	Waterford, 9 a.m., Wednesday	54	46
Ditto - - - 2 14 a.m., Monday	Cork, 8 a.m., Wednesday -	53	46

Geo. Stow.

Appendix, No. 11.

STATEMENT, showing the TIME occupied in the Circulation of LETTERS from *Waterford* and *Cork*, to a few Selected Towns in *England*, by *Hobb's Point, Holyhead, Birkenhead*, and *Liverpool*.

BY HOBB'S POINT.

Departs from	Arrives at	Time Occupied H. M.
Waterford, 6 30 a.m., Monday	Bristol, 5 59 p.m., Tuesday -	35 29
Cork, 6 30 p.m., Monday -	Ditto, 5 59 p.m., Wednesday	47 29
Waterford, 6 30 a.m., Monday	Dartmouth, 1 48 p.m., Wednesd.	55 18
Cork, 6 30 p.m., Monday -	Ditto, 1 48 p.m., Thursday -	67 18
Waterford, 6 30 a.m., Monday	Falmouth, 9 11 p.m., Wednesd.	62 41
Cork, 6 30 p.m., Monday -	Ditto, 9 11 p.m., Thursday -	74 41
Waterford, 6 30 a.m., Monday	London, 6 a.m., Wednesday -	47 30
Cork, 9 30 p.m., Monday -	Ditto, 6 a.m., Thursday -	50 30
Waterford, 6 30 a.m., Monday	Newport, 2 7 p.m., Tuesday -	31 37
Cork, 6 30 p.m., Monday -	Ditto, 2 7 p.m., Wednesday	43 37
Waterford, 6 30 a.m., Monday	Portsmouth, 5 31 a.m., Thursd.	71 1
Cork, 6 30 p.m., Monday -	Ditto, 5 31 a.m., Friday -	83 1
Waterford, 6 a.m., Monday -	Southampton, 2 41 a.m., Thursd.	68 41
Cork, 6 30 p.m., Monday -	Ditto, 2 41 a.m., Friday -	80 11
Waterford, 9 a.m., Monday -	Swansea, 7 40 a.m., Tuesday -	25 40
Cork, 6 30 p.m., Monday -	Ditto, 7 48 a.m., Wednesday	37 16

BY HOLYHEAD.

Departs from	Arrives at	Time Occupied H. M.
Waterford, 6 p.m., Monday -	Bristol, 7 23 a.m., Thursday -	61 23
Ditto - 6 p.m., Monday -	Ditto, 1 a.m., Thursday -	55 0
Cork, 12 30 p.m., Monday -	Ditto, 7 23 a.m., Thursday -	66 53
Ditto, 12 30 p.m., Monday -	Ditto, 1 a.m., Thursday .	60 30
Waterford, 6 p.m., Monday -	Dartmouth, 1 48 p.m., Thursd.	67 48
Cork, 12 36 p.m., Monday -	Ditto - 1 48 p.m., Thursd.	73 18
Waterford, 6 p.m., Monday -	Falmouth, 9 11 p.m., Thursday	75 11
Ditto - 6 p.m., Monday -	Ditto - 5 37 a.m., Friday -	83 37
Cork, 12 30 p.m., Monday -	Ditto - 9 11 p.m., Thursday	80 41
Ditto, 12 30 p.m., Monday -	Ditto - 5 37 a.m., Friday -	80 7
Waterford, 6 p.m., Monday -	London, 2 p.m., Wednesday -	44 0
Cork, 12 30 p.m., Monday -	Ditto, 2 p.m., Wednesday -	49 30
Waterford, 6 p.m., Monday -	Newport, 9 52 a.m., Thursday	63 52
Cork, 12 30 p.m., Monday -	Ditto, 9 52 a.m., Thursday	69 22
Waterford, 6 p.m., Monday -	Portsmouth, 5 10 a.m., Thursd.	59 10
Cork, 12 30 p.m., Monday -	Ditto - 5 10 a.m., Thursd.	64 40
Waterford, 6 p.m., Monday -	Southampton, 12 mid. Wednes.	54 0
Cork, 12 36 p.m., Monday -	Ditto - 12 mid. Wednes.	59 30
Waterford, 6 p.m., Monday -	Swansea, 3 54 p.m., Thursday	69 54
Cork, 12 30 p.m., Monday -	Ditto, 3 54 p.m., Thursday	75 24

BY BIRKENHEAD.

Departs from	Arrives at	Time Occupied H. M.

BY LIVERPOOL.

Departs from	Arrives at	Time Occupied H. M.
Waterford, 6 p.m., Monday -	Bristol, 7 23 a.m., Thursday	61 23
Cork, 6 3 p.m., Monday .	Ditto, 7 23 a.m., Thursday	60 53
Waterford, 6 p.m., Monday -	Dartmouth, 1 48 p.m., Friday	91 48
Cork, 6 30 p.m., Monday -	Ditto, 1 48 p.m., Friday -	91 18
Waterford, 6 p.m., Monday -	Falmouth, 5 37 a.m., Friday -	83 37
Ditto - 6 p.m., Monday -	Ditto, 9 11 p.m., Friday -	90 11
Cork, 6 30 p.m., Monday -	Ditto, 5 37 a.m., Friday -	83 7
Ditto - 9 30 p.m., Monday	Ditto, 9 11 p.m., Friday -	98 41
Waterford, 6 p.m., Monday -	London, 6 0 a.m., Thursday	60 0
Cork, 6 30 p.m., Monday -	Ditto, 6 6 a.m., Thursday	59 30
Waterford, 6 p.m., Monday -	Newport, 9 52 a.m., Thursday	63 52
Cork, 6 36 p.m., Monday -	Ditto, 9 52 a.m., Thursday	63 22
Waterford, 6 p.m., Monday -	Portsmouth, 3 p.m., Thursday	69 0
Cork, 6 30 p.m., Monday -	Ditto, 3 p.m., Thursday -	68 30
Waterford, 6 p.m., Monday -	Southampton, 2 p.m., Thursday	68 0
Cork, 6 30 p.m., Monday -	Ditto, 2 p.m., Thursday -	67 30
Waterford, 6 p.m., Monday -	Swansea, 3 54 p.m., Thursday	69 54
Cork, 6 30 p.m., Monday -	Ditto, 3 54 p.m., Thursday	69 24

Geo. Stow.

Appendix, No. 12.

A STATEMENT showing the Circulation of LETTERS between certain TOWNS in *England* and *Waterford* and *Cork*, assuming a PACKET STATION to be Established at *Brean Down*, and the Packets fitted to the NIGHT and DAY *London* MAILS, assuming also that Packets are Established between *Cardiff* and *Brean Down*.

NIGHT MAIL.			DAY MAIL.		
Departs from	Arrives at	Time Occupied	Departs from	Arrives at	Time Occupied
		H. M.			H. M.
Cardiff - 11 15 p.m., Monday	Cork - 10 57 a.m., Wednesday	35 42	Cardiff - 12 40 p.m., Monday	Cork - 12 22 a.m., Wednesday	35 42
Exeter - 8 35 p.m., Monday	Ditto - 10 57 a.m., Wednesday	38 22	Exeter - 10 0 a.m., Monday	Ditto - 12 22 a.m., Wednesday	38 22
Falmouth - 6 42 a.m., Monday	Ditto - 10 57 a.m., Wednesday	52 15	Falmouth - 9 19 p.m., Monday	Ditto - 12 22 a.m., Thursday	51 3
London - 8 0 p.m., Monday	Ditto - 10 57 a.m., Wednesday	38 57	London - 9 30 a.m., Monday	Ditto - 12 22 a.m., Wednesday	38 52
Newport - 9 28 p.m., Monday	Ditto - 10 57 a.m., Wednesday	37 29	Newport - 10 53 a.m., Monday	Ditto - 12 22 a.m., Wednesday	37 29
Southampton, 3 14 p.m., Monday	Ditto - 10 57 a.m., Wednesday	43 43	Southampton, 4 39 a.m., Monday	Ditto - 12 22 a.m., Wednesday	43 43
Swansea - 6 0 p.m., Monday	Ditto - 10 57 a.m., Wednesday	40 57	Swansea - 7 25 a.m., Monday	Ditto - 12 22 a.m., Wednesday	40 57
Cardiff - 11 15 p.m., Monday	Waterford 10 45 p.m., Tuesday	23 30	Cardiff - 12 40 p.m., Monday	Waterford, 12 10 p.m., Tuesday	23 30
Exeter - 8 35 p.m., Monday	Ditto - 10 45 p.m., Tuesday	26 10	Exeter - 10 0 a.m., Monday	Ditto - 12 10 p.m., Tuesday	26 10
Falmouth - 6 42 a.m., Monday	Ditto - 10 45 p.m., Tuesday	40 3	Falmouth - 9 19 p.m., Monday	Ditto - 12 10 p.m., Wednesday	38 51
London - 8 0 p.m., Monday	Ditto - 10 45 p.m., Tuesday	26 45	London - 9 30 a.m., Monday	Ditto - 12 10 p.m., Tuesday	26 40
Newport - 9 28 p.m., Monday	Ditto - 10 45 p.m., Tuesday	25 17	Newport - 10 53 a.m., Monday	Ditto - 12 10 p.m., Tuesday	25 17
Southampton, 3 14 p.m., Monday	Ditto - 10 45 p.m., Tuesday	31 31	Southampton, 4 39 a.m., Monday	Ditto - 12 10 p.m., Tuesday	31 31
Swansea - 6 0 p.m., Monday	Ditto - 10 45 p.m., Tuesday	28 45	Swansea - 7 25 a.m., Monday	Ditto - 12 10 p.m., Tuesday	28 45

NIGHT MAIL.			DAY MAIL.		
Departs from	Arrives at	Time Occupied	Departs from	Arrives at	Time Occupied
		H. M.			H. M.
Cork - 3 8 p.m., Monday	Cardiff - 2 50 a.m., Wednesday	35 42	Cork - 10 48 p.m., Monday	Cardiff - 10 30 a.m., Wednesday	35 42
Ditto - 3 8 p.m., Monday	Exeter - 3 30 a.m., Wednesday	38 22	Ditto - 10 48 p.m., Monday	Exeter - 1 10 p.m., Wednesday	38 22
Ditto - 3 8 p.m., Monday	Falmouth, 7 23 p.m., Wednesday	52 15	Ditto - 10 48 p.m., Monday	Falmouth, 1 51 a.m., Thursday	51 3
Ditto - 3 8 p.m., Monday	London - 6 5 a.m., Wednesday	36 57	Ditto - 10 48 p.m., Monday	London - 1 45 p.m., Wednesday	38 57
Ditto - 3 8 p.m., Monday	Newport, 4 37 a.m., Wednesday	37 29	Ditto 10 48 p.m., Monday	Newport, 12 17 p.m., Wednesday	37 29
Ditto - 3 8 p.m., Monday	Southampton, 10 51 a.m., Wedn.	43 43	Ditto 10 48 p.m., Monday	Southampton, 6 31 p.m., Wedny.	43 43
Ditto - 3 8 p.m., Monday	Swansea - 6 5 a.m., Wednesday	40 57	Ditto - 10 48 p.m., Monday	Swansea, 3 45 p.m., Wednesday	40 57
Waterford, 3 20 a.m., Monday	Cardiff - 2 50 a.m., Tuesday	23 30	Waterford, 11 0 a.m., Monday	Cardiff - 10 30 a.m., Tuesday	23 30
Ditto - 3 20 a.m., Monday	Exeter - 5 30 a.m., Tuesday	26 10	Ditto - 11 0 a.m., Monday	Exeter - 1 10 p.m., Tuesday	26 10
Ditto - 3 20 a.m., Monday	Falmouth, 7 23 p.m., Tuesday	40 3	Ditto - 11 0 a.m., Monday	Falmouth, 1 51 a.m., Wednes.	38 51
Ditto - 3 20 a.m., Monday	London - 6 5 a.m., Tuesday	26 45	Ditto - 11 0 a.m., Monday	London - 1 45 p.m., Tuesday	26 45
Ditto - 3 20 a.m., Monday	Newport - 4 37 a.m., Tuesday	25 17	Ditto - 11 0 a.m., Monday	Newport - 12 17 p.m., Tuesday	25 17
Ditto - 3 20 a.m., Monday	Southampton, 10 51 a.m., Tuesd.	31 31	Ditto - 11 0 a.m., Monday	Southampton, 6 31 p.m., Tuesd.	31 31
Ditto - 3 20 a.m., Monday	Swansea - 6 5 a.m., Tuesday	28 45	Ditto - 11 0 a.m., Monday	Swansea - 3 45 p.m., Tuesday	28 45

6 May 1842.

Geo. Stow.

Appendix, No. 13.

Letters Posted at Cove, Cork, and Waterford.

Appendix, No. 13.

IRELAND.

A RETURN of the NUMBER of LETTERS that have been POSTED at *Cove*, *Cork*, and *Waterford* Post Offices, of Ships arriving from Abroad, during the Twelve Months ended the 25th April 1842.

Cork	2,249
Cove	6,455
Waterford	1,915

General Post Office,
Dublin, 6 May 1842.

Aug. Godby.

Note.—This Return does not include letters landed at the above places, the gratuities upon which are paid in Great Britain, and of which no account can be given.

General Post Office,
7 July 1842.

W. L. Maberly, Secretary.

Appendix, No. 14.

Letters Posted at different Offices, in Two Weeks in 1842.

Appendix, No. 14.

AN ACCOUNT of the NUMBER of LETTERS POSTED at the following OFFICES, in the Two Weeks commencing respectively Monday, May 2d, and Monday, May 9th, 1842, distinguishing the Number of Letters for *Ireland* from those for other Places.

NAME of OFFICE.	Number of Letters posted in the Week commencing 2d May 1842.			Number of Letters posted in the Week commencing 9th May 1842.		
	For Ireland.	For other Places.	TOTAL.	For Ireland.	For other Places.	TOTAL.
Chepstow	50	2,215	2,265	44	2,368	2,412
Monmouth	16	2,381	2,397	15	2,414	2,429
Newport	437	6,800	7,237	372	7,193	7,565
Abergavenny	37	2,812	2,849	35	2,691	2,726
Pontypool	32	1,062	1,094	12	1,041	1,053
Cardiff	219	4,891	5,110	255	4,101	6,356
Merthyr	124	2,363	2,487	121	2,952	3,073
Neath	135	2,325	2,460	190	2,268	2,458
Swansea	319	6,846	7,165	407	6,752	7,159
Llanelly	209	1,098	1,307	78	1,213	1,291
Carmarthen	237	3,783	4,020	254	4,233	4,487
Pembroke	21	1,254	1,275	13	933	946
Milford	124	878	1,002	39	167	206
Brighton	247	24,981	25,228	325	25,000	25,325
Southampton	221	17,496	17,717	216	16,854	17,070
Portsmouth	337	15,732	16,069	392	15,796	16,188
Plymouth	744	17,024	17,768	391	15,015	15,406
Dartmouth	14	1,499	1,513	25	1,545	1,570
Exeter	155	17,059	17,214	146	17,321	17,467
Ilfracombe	20	1,120	1,140	28	1,097	1,125
Barnstaple	44	3,900	3,944	49	3,514	3,563
Bristol	1,680	47,785	49,465	2,066	55,593	57,659
Gloucester	319	9,826	10,145	208	10,082	10,290

General Post Office,
4 June 1842.

W. L. Maberly, Secretary.

Appendix, No. 15.

REPORTS of Lieutenants *Claxton* and *Denham*, R.N. on the subject of a BREAKWATER at the *Mumbles.*

To the Trustees of *Swansea* Harbour.

Appendix, No. 15.

Reports relating to Swansea Harbour.

Gentlemen,

Swansea, 30 April 1833.

HAVING been requested to give an opinion in writing upon the subject of a breakwater at or near the Mumbles Head, I beg to inform you that I have carefully examined the situation, where in my humble opinion it would be most advisable to construct this most important barrier. The depth of water in what I would denominate the Anchorage Ground, has not varied, as far as memory serves me, in any perceptible degree since 1820, when I sounded the whole of the roadstead with the same view. Within the line of low-water mark there is a visible alteration, and I have reason to believe it has shoaled a little within the two-fathom soundings. The trustees are aware that my soundings have been taken on the neap tides, I cannot, therefore, speak positively; and while I decline for the present confirming, I wish not to be understood as giving any opinion at all at variance with the soundings in the chart of Lieutenant Denham, whose authority upon a matter requiring minute and repeated operations, one so liable to elemental influence, must be the best.

The points to be considered are, I apprehend, the general usefulness of an asylum harbour to the whole trade of the Bristol Channel, more particularly the larger ships; the want of an asylum for vessels, driven in by stress of weather, or mistaken in their reckonings, somewhere between Milford and Kingroad, when bound to ports, English or foreign, in the Channel; the advantage to His Majesty's cruisers, whether ships of war or revenue vessels; the saving in wear and tear to the coasting trade; the interests of merchants, mariners, and underwriters, and above all, of humanity. After applying myself to these points, which I have ever considered the ones calling most loudly for the erection, I propose to enter upon its practicability, whether as regards local facilities, or the means necessary to arrive at the desired end.

Ships sailing from Kingroad, with a S. or S.S.E. wind, often find it as they get down channel gradually veering, until, on opening Barnstaple Bay, it is no better than S.W. Long nights and the appearances as to weather, induce a consultation, and the pilot and captain not liking to run back, a gale coming on, probably from the westward, every effort is made to keep the ship in deep water, until time and tide; after a night of exertion, of wearing, tearing, splitting, and carrying away, or daylight, see the ship with an exhausted crew before the wind, running for Kingroad minus a sail or two, and not unfrequently spars also (or even anchors and cables, from having had the temerity to anchor under Lundy, always unsafe with sudden north-westerly shifts in bad weather). Two or three hours would have seen this ship the evening before snug under the Mumbles.

South-westerly gales of any continuance are, after rain, ordinarily followed by shifts of wind from the N.W. and N., which, freshening to a stiff breeze or gale, blow for an indefinite period. From the Mumbles and Milford, ships with a northerly wind would start in any weather; and even at N.W., if it did not overblow, might make a leg to the S.W.; but from Kingroad, unless it is quite moderate, or a good working breeze, no pilot dare move thence even if it be due north*.

It has been my lot to have been windbound during the last twelve years, for six, seven, and even eight weeks at a time; and I have known others to have been nine, ten, and eleven in Kingroad, and probably once in each week we might have slipped to sea from any other place, on the north side below Nash Point.

In moderate westerly and in south-westerly weather, when vessels nearly lay along the English land in smooth water, as far as Morte Point, even in stiff breezes, ships anxious to get from Kingroad would be glad to make an effort to drop or reach far enough to the westward, so as to be able to make a course for the Mumbles, if it were that asylum harbour a breakwater would make it.

I have, when in charge of the Severn, of 500, and the Earl of Liverpool, of 400 tons, been driven back several times on the same voyage in south-westerly and westerly gales, from spots far to the westward of the Mumbles, on each of which occasions the pilot (and he was sometimes urged even then, when the wind was W.N.W.) would have taken the ship to the Mumbles, if it had not been for the fear of a sudden shift to the southward, and getting embayed on a lee shore, which a breakwater would obviate.

Two ships bound to the West Indies, in the same employ, dropped down the river and sailed together, were driven back from the westward or neighbourhood of Lundy, not being able to fetch Milford. One of these slipped out soon afterwards, in a light slant from the northward, went out, unloaded, loaded and returned, passing her companion, still in Kingroad,

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* This was before steam-tugs were introduced; the case is now altered.

road, as she entered the Avon. A breakwater at the Mumbles, in this instance, would have saved an outlay of at least 400*l.*, besides damage to perishable articles, and the loss of homeward consignments and freight.

It is not unusual for ships, particularly foreign ones, bound to the ports in or beyond the Channel, from the captains being indifferent navigators, or from not knowing their position, the sun having been long obscured, from having overrun their distance, not sounded, or mistaken their soundings, or from having been driven in by stress of weather or scant winds, to have been found by pilots, or to have found themselves without being able to obtain them, well in the Bristol Channel, wind W.N.W. a gale, and no port to leeward but Kingroad. Rather than run the risk of being pinned there by northerly and north-westerly winds, these vessels would gladly seek shelter in a safe anchorage, 60 or 70 miles nearer their destination. The Russian frigates two years since form an example on this head.

The great benefit smooth laying in the mud or at anchor would confer on owners of coasters, using all the ports of the Bristol Channel, or blown in by stress of weather, would be incalculable. The perpetual thumping on every change of tide, the strain on cables and masts, weakens and injures the strongest vessels, and even one parting her cable causes great havoc to a little fleet at a time, to repair all of which becomes the business of the underwriters, although not without serious loss to the owners, and frequent injury and even loss of life to the crews. I have seen as many as 200 vessels at one time seeking shelter at the Mumbles, and I have seen one carry away or injure the spars and hulls of seven or eight at a time, all of whose cables have parted, and some have been left as far as the breakers could force them at high water, and there have been beneaped until the following springs.

It is notorious that in the late gales, the four vessels that went down in the Bay, some or most of the crews of which also perished, would have been perfectly secure with a breakwater. Vessels at anchor alarmed at certain elemental indications, meet, by getting under weigh, that which it was their object to avoid—shipwreck. With a high southerly wind, a dangerous sea, a lee shore, and a shattered craft, that event, unless there is sufficient water to run for the harbour, is almost inevitable.

His Majesty's ships, which are in the time of war in the habit of guarding the coasts, sloops, brigs, and cutters, &c. &c. would find an asylum port here, easy of access and egress, a great acquisition, as would larger vessels bound to Milford, having overrun that port, or being pressed by weather or crippled, either through action or the elements. If they even touched the soft mud, it would not injure them inside a breakwater; and it must not be forgotten that it would only be on the low springs that the water is not ample for even a ship drawing 25 or 26 feet, (the water drawn by a 74) when for moving or manœuvring at high water, there will be from eight to ten fathoms all round the anchorage.

Had there been a man-of-war in at the Mumbles, the American brig Argus would not, in 1814–15, have been able to cruise, burn, sink or destroy as she did, I believe, in sight of the Mumbles Land.

As to the practicability, the bottom, being blue clay and mud, is admirably adapted to hold sunken hulls of ships. The limestone cliffs are within 500 yards of the spot. The sea never has such a send as that which rolls into Plymouth Sound or Cherbourg; it is more of a chopping sea, short and dangerous to small vessels, but, although very heavy at times, not so likely to affect a breakwater. The elbow of the erection, I humbly submit, should be to the south, the English land being only about eight leagues distant in that direction; no swell rises, like that from the ocean, caused by westerly and south-westerly gales, which would take the breakwater lengthwise or slantingly. The best anchorage ground, as far as soundings are concerned, is from E. to E.S.E., from the point to which two cables or thereabout could reach, measuring from the low-water mark at the Mumbles Head, (which space at present I think should be left as an opening both for navigation and scouring or preventing any deposite), to about a half a mile east, and thence in a northerly direction 800 yards, thence westerly about half a mile, and thence southerly at pleasure toward the Mumbles low-water point. Enclosing thus a square superficies, containing about 640,000 yards, sufficient room for many ships or vessels to lay afloat, the largest nearest the outer imaginary line, and the smallest toward the inner one, in from five or four and a half to three and a half fathoms of water; and within the inner imaginary line for a few hundred yards further in every direction would be anchorage in two and three-quarters, two and a half, and two fathoms for vessels of lighter draught that did not choose to take the mud, still further in the bight, where the small fry now generally lay aground on falling water. The great point for large ships would be so to construct the barrier as to prevent any sea, or swell, sufficient to make them send, from any point between S. and W.N.W. (the winds when the outward bound would most seek and require shelter), which being likely to be the heaviest, should be most guarded against for large vessels, and from S.S.W. to the S.E. for small ones. At the first blush, to do this it is obvious an erection from the Mumbles Head, trending to the E.S.E. and thence with a curve to the N.E. would be the most efficient; but it would be attended with one or two difficulties, on which it would be presumption in me to say more than that they appear to be objections. First, would the mud, &c. settle and fill up if there was no opening? and, secondly, would it not be necessary to extend such a pier several hundred yards further to the N.E. before shelter would be afforded to the whole of the roadstead, and more particularly the coasters in the bight of the bay? If there are sufficient funds, I am of opinion that a short pier, of about 300 yards from the outer point, trending E.S.E., and a breakwater rather overlapping, so as to shut out the south-western swell, and that breakwater trending with a curve south-easterly round to N.E. about 500 or 600 yards, with an opening of the least sufficient breadth for either navigation or scouring, would be the most efficient.

It

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Reports relating to Swansea Harbour.

It would be most desirable to embrace within the barrier as much as possible of the four and a half and four fathoms soundings for the largest vessels; and in this case, with a protecting short pier to the E.S.E. as aforesaid, the breakwater might be taken about 200 yards further out than I stated at first. I should have no apprehensions of mud settling with so short a pier, particularly if it inclined rather out than inwards, and was without any curve; I think this would not interrupt nature's proceedings. I humbly submit, all things considered, whether it would not be best to erect the island barrier, continuing it only as far as circumstances seemed to require it, to leave the length, in fact, to experience and future amendments by piers either within or without the inner head of the breakwater (which itself could at pleasure be brought nearer the land), to leave room for which, if found necessary, I would not at first contract the passage too much from what (by filling up both the present openings) I would call the main land.

With regard to filling up the sounds, the inner one has 18 feet water, and the outer one many more at high-water spring tides, and as they face the S.W. and are not many yards across, a swell tumbles into the bay in bad weather of no mean description. They are not wanted for navigable purposes, or for scouring, I apprehend, as the mud is most in motion when they are dry, *i. e.* during the last quarter of the ebb. To fill them up is easy and the expense insignificant, and to open them again would be easier if experience proved it to be necessary. As they are, the bay is a little exposed; and I have a strong idea that the eddy caused by the current through them, and the rush round the head where they meet on the ebb, has caused the formation of the Mixon Sand, which I think would vanish altogether.

The largest ships that trade from Bristol to the East or West Indies or America seldom draw more than 16 feet outward bound, and it would be a very rare occurrence for a ship homeward bound to require shelter, as with ordinary foul winds they have no business so far to the northward.

The average draught of Bristol West Indiamen is about 14 ½ feet. Nautical men know that in open roadsteads one fathom and a half at least more than a ship draws is a *sine qua non*; but with a soft muddy bottom, and no possibility of a swell rising, enough suffices. In this anchorage there would always be several feet to spare, and at high water 9, 10, or 11 fathoms to manœuvre in.

With respect to an inner breakwater, for the erection of which I am informed there is nearly a sufficient fund, I do humbly hope the sentiments which were expressed unanimously by the Trustees will be persevered in, and that they will not decide on doing that which would be quite as efficient for protecting the trade of the Port of Swansea, while by offering their means there is a chance of conferring, on a grander scale, a benefit on general navigation, and I may add, of completing what it is to be hoped may be a national undertaking in part, if not altogether.

I cannot conclude this report, which circumstances have compelled me to extend, without assuring the Trustees that I am confident there is not a mariner, a pilot, or a master of a vessel, in the habit of using the Bristol Channel, that will not say such an erection as will afford security at the Mumbles, will be a blessing conferred on himself, and that it only requires a slight examination of the maps or charts to satisfy the most inexperienced, that nature has nowhere done so much or offered such facilities as at the Mumbles, between Milford and Kingroad on the north, and Kingroad and the Land's End on the south side of the Channel. That such a breakwater would be a general benefit to the trade of all the ports in this Channel admits of no doubt, and I believe all parties connected with the same would, on properly investigating the matter, discover it would be for the general good, not materially affecting Swansea more than any other port, whose coasters are now in the habit of flocking by hundreds, on the least appearance of bad weather, to this only refuge for the destitute, anywhere between Caldy Island and Penuarth, whence access and egress is so easy.

I trust it will be understood that I only venture on practical nautical opinions, and that I am not invading the province of the engineer when I state my conviction, that hulls loaded on the spot, as deep as they will float with lime-stones any size (as the brigs now load high and dry under the Cleaves), with their decks out sunk where decided on, and afterwards filled, would never move from the bed of clay they would settle several feet into. If there were any doubt upon the subject, they could be bolstered up one at a time as they were scuttled with stones on either side. This, however, is a matter of pure calculation, the depositing of the stone being from 1 *s.* 9 *d.* to 2 *s.* per ton. But it is at least a question whether sinking large vessels (which his Majesty's Government might perhaps be induced to give, if they view the benefit as a national one), and at once showing that which while progressing gradually would be, to a certain extent, a danger, is not a desideratum. A ship of 500 tons would measure from the keel to the upperworks more than 30 feet; a line-of-battle ship more than 50; this latter would at once be near the surface at high water in ordinary springs, the former within a few feet of high water on the neaps. The large one would show as a base the beam of the ship on which to erect the mason-work, at an angle of 45; the latter would only measure about 30 feet, and as there would be at least 30 more to be added to the perpendicular height, it would not be sufficient.

As much cover as possible for the barrier from the Head would be desirable, and at the same time the best depth of water. Unfortunately the best water is without the Head, with the Western land open, to embrace which, operations to be most effectual ought to be more extended, and would require greater means, although I am of opinion that a breakwater

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Reports relating to Swansea Harbour.

even within the line of the Head would be a most important advantage to the navigation of the Bristol Channel.

I have, &c.
Christopher Claxton, R. N.

To the Trustees of *Swansea* Harbour.

Gentlemen, Swansea, Saturday, 11 May 1833.

The importance you appear to have attached to my report, combined with the non-arrival of Mr. Walker, the engineer, whom I was requested to meet, induced me to avail myself of two opportunities, yesterday and Thursday, for taking soundings at the Mumbles, which the thick weather, westerly winds, swell, and other circumstances of a peculiar nature, prevented my remarking upon, with sufficient accuracy, on my last visit. You are already aware that my report was hurried to meet your wishes, those of your member, and the extreme exigency of the case as it then stood. I cannot even now minutely record the soundings, but I have satisfied myself that "the best water is outside the line of the Head," as I before stated in the last paragraph, *i. e.* with Toot's or Barrell's-place Hill open in the north-west by west, in which direction, at about half a mile from the Head, after tolerably regular soundings from 3 and 4, to 5 and 6 fathoms, very suddenly there is only 3. I do not recollect this bank before, which appears to extend toward Black Pile, gradually shoaling to 1½, although there is deeper water within it in the anchorage ground.

To form a barrier here, as I also stated in the last paragraph, "operations must be on an extended scale, and would require greater means." An engineer would probably have reported, that two lines of building, of more than 600 yards each, would not be more than sufficient; the first to extend from the eastern boundary of a small scouring opening, from the Head, in a south-easterly direction, at first, then curving toward the eastern land, to finish in about five fathoms. Nearly opposite to this point, about due east 300 or 400 yards, are three fathoms of water only. Here, leaving the above number of yards (in never less than four fathoms) for a navigable passage, facilities offer themselves for a second breakwater, trending to the northward and eastward, at nearly right angles with the other. The anchorage for ships requiring four fathoms, would even within these be a contracted one, which circumstance alone, would, I fear, be fatal to expectations of a national tendency, while the very heavy probable expense of an increased line would throw obstacles in the way, or at least augment the difficulty, of providing resources from the shipping interests of the ports of the Bristol Channel only.

By the coasting trade a long inner breakwater would be preferred, and although, in my humble opinion, not so convenient, quite as efficient a barrier, and it would not be without considerable, nay, important beneficial results to the larger ships. Supposing it placed where competent practical persons have fixed the site, in never less than eight feet of water, on the lowest spring veres, it would give confidence to masters and pilots, by being equal to admitting vessels of almost any draught to place themselves within it, (ready to take the ground in the mud on falling water,) more than seven hours out of every 12, or nearly 16 hours in every 24, or of course, to remove therefrom on a change of weather. It might not happen that a ship would find it necessary ever to use it, but knowing they might, in cases of emergency, if caught in violent southerly gales, would induce many masters of vessels, now in the habit of avoiding it, to resort to an anchorage extremely well situated, and possessed of great advantages, either as to holding ground, shelter, or depth of water; while to every coaster or trader, now in the habit of using dry harbours, or the shelter afforded by Penarth, the Mumbles, or other places of resort, it would be the cause of incalculable saving, and to the mariners navigating the same of the greatest possible comfort. With great respect for the public spirit you have displayed in this matter,

I have, &c.
(signed) C. *Claxton.*

Sir, Admiralty Survey, Ilfracombe, 6 June 1832.

With reference to a request of Mr. Vivian, through you, that I would furnish the Swansea Harbour trust with the high, low, and under-water feature of the Mumbles, together with any remarks which might help to develope the practicability and utility of a breakwater thereat, I herewith offer two rough extracts from my survey of last year, marked (A.) and (B.), not hesitating to premise, that the contemplation is not only feasible and locally practicable, but likely to prove of great advantage to the Swansea Bay interests; for many a vessel that makes for the Bristol Channel, with the intention of trading in the Bay, is induced to proceed to the eastern ports when finding herself late for crossing the bar, rather than risk the wear and tear of hovering under a strong southerly wind till the succeeding flood, in a bay totally unsheltered between the S.S.W. and S.E. as it now is. Whilst, as respects the general coaster, I cannot better evince my own previous impression of even its present local advantages, than by quoting the sailing directions I compiled and submitted to office last year, where I am led to observe, in alluding to Swansea, &c.—"It also occupies a more sheltered position in the Bay than the other rivers, from its comparative contiguity

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tiguity to the western arm of it, so well known to the Bristol Channel coaster as the Mumbles, where hundreds of vessels take shelter in prevailing westerly winds, glad to attain a starting point situated within one tide's working of Lundy (the mouth of the Channel)—a striking matter in favour of trading with Swansea, as is often evinced by the numerous vessels that exhaust a slant of wind (which has carried the Swansea Bay traders round the Land's-end) in merely getting down from the eastern ports to the Mumbles."

I need not express, then, how happy I shall be to add, that a breakwater (on any plan) is in progress, which shall complete the invitation by presenting shelter also from the southward; and gratified, moreover, if either of the sketches proffered should afford but a hint for adoption. I submit two, in anticipation of a natural question arising as to the probable filling up of the roadstead, by a consequent deposit through interrupting the course of ebb-stream. Now of this I am not apprehensive, by reason of the principal set of that stream always sweeping out directly S.S.E. from the Oystermouth Shore, especially after the Mumble Sounds uncover. I therefore propose, as the most conveniently erected and efficient projection, the sketch (A.),—convenient, because it can be gradually shot out by trams from the main quarries, thereby avoiding the expense and dependence on fine weather in transporting the material by vessels; and efficient, because it will check the predominant swell without bending in so as to cause difficulty of rounding it to vessels, whilst the filling up of the sounds will effectually preclude any cross action of water. In order to convey my ideas at once to the mind's eye, I have delineated the present actual features in black ink, and the proposed work in red ink, outline; it will thus appear in sketch (A.), that I would fill up the two sounds, the outer of which is 22 feet only under high-water level on springs, and then continue in a S. 69° E. (E.S.E.) direction from the lighthouse, for 1,500 feet from the cliff thereof, a gently curved arm, with its convexity inwards, to invite a cleansing sweep of the ebb, and turn off the S.W. and southern sea. The depth of work required to bring it level with high-water ordinary springs would be 50 feet, the rise there being 29½ feet, and the average low-water depths at its base 21 feet, where 150 feet spread would support it.

Should, however, a difference in expense not be an object, good shelter, easy ingress and egress, with less possibility of the ebb depositing, may be accomplished by the projection in sketch (B.), wherein I suggest the filling up of the inner sound only, cutting down the outer sound to low-water level, the bottom whereof is now only eight feet above that level, and then extending an arm 1,300 feet from the Lighthouse cliff in a N. 73° E. (E. by N. ½ N.) direction. The depth and breadth of work would be about the same as (A.), but all the material, except what the outer sound excavation afforded, would have to be transported in craft; whilst the advantages which suggest themselves are—a more compact shelter from the S.E.—an often convenient egress and ingress through the outer sound, without always rounding the breakwater on a pinching wind, and an uninterrupted reflux of tide.

I beg to add, I shall derive much satisfaction, if these remarks contribute even a hint towards so desirable an undertaking as a breakwater at the Mumbles, and, should any plan be adopted before August, I can have it blended with the forthcoming engraving of Swansea Bay, the advantages of which will be obvious.

I am, &c.
(signed) *H. M. Denham*, Lieut. R. N.

To Mr. Padley,
Clerk to the Harbour Trust, Swansea.

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DEAN FOREST BRIDGE.

Appendix, No. 16.

Report on Dean Forest Bridge.

REPORT explanatory of a Survey of the *Severn*, in the neighbourhood of *Newnham*, in *Gloucestershire*, made with a view to forming a BRIDGE across the same.

IN compliance with the commands contained in Mr. Milne's letter of the 2d of May last, acquainting me that in consequence of representations made to the Commissioners of Her Majesty's Woods, &c., great advantages would be likely to accrue to the property of the Crown, and to the interest of the public, were a good and safe communication made across the river Severn in the neighbourhood of Newnham, and instructing me to proceed with a survey of that part of the river, and to report to the Board my opinion of the most eligible spot for forming such a communication, directing me also to accompany my Report with a plan and estimate of the expense of establishing a floating bridge, similar to those executed by me at Plymouth and other places, I took the earliest opportunity of proceeding with the inquiry; the result I have now the honour of submitting in the following Report and accompanying explanatory plans, &c., which have been made from the surveys rendered necessary for the due investigation of the subject.

The portion of the river examined in this inquiry is that which lies between the entrance of the Stroudwater Canal, near Framilode, and the entrance of the Gloucester and Berkeley Canal, at Sharpness Point, a distance of 15 miles, measuring the course of the river.

This portion of the Severn separates the opulent manufacturing and agricultural neighbourhoods of Stroud, Nympsfield, Dursley, Wotton-under-Edge, Berkeley, Frampton, &c. from the rich coal and iron district of the Forest of Dean, and towns of Lidney, Monmouth, Coleford, Ross, Mitchel Dean, Little Dean, Newnham, &c. Across it there are three ferries,

ferries, viz. Framilode, Newnham, and Purton; the passage of these is made unusually inconvenient and difficult from the great strength of the tide and obstructions from sand-banks.

Framilode Ferry is the highest up the river, and is therefore the least exposed to tides and winds, and being also the narrowest, is subject to the fewest interruptions. It is, however, deficient of conveniences for carriage traffic, and badly situated for the accommodation of the surrounding district.

Newnham Ferry is the next on the course of the river, which is here considerably broader, and more exposed to wind and tides. Its situation is remarkably convenient and central for the most populous parts of the opposite shores of the river; and from its being close under the town of Newnham, it has considerable traffic in foot-passengers, saddle-horses, and farming stock, but it is liable to great interruptions during spring tides, and is rendered exceedingly inconvenient by a bank of sand and mud, extending half way across the river, and which has to be forded during the greater portion of the day. The only convenient time for crossing it is from half an hour before to half an hour after high-water of spring tides; it is therefore wholly incapable of affording the extent of accommodation which the traffic of the district requires.

Purton Passage is still lower down the river; it is a mile and quarter wide at high water, and about a quarter of a mile at low water, its track being across a half-tide sand-bank, which has to be forded at least six hours a day. It is much exposed to south-west and north-east winds, and at spring tides the current is so great that boats do not venture to cross it for hours together, so that it is only for about an hour and a half, at high water, that a passage can be made with any certainty or convenience; in short, the situation of this ferry is of the most forbidding kind.

The Severn is unquestionably one of the most difficult rivers in Europe on which to establish a safe and commodious ferry. The great perpendicular rise and violent current of its tides have no parallel. These occasion shifting sand-banks and variable channels of the most capricious description, giving, daily, new forms and depths to the bed of the river.

From these circumstances I could not find, in the whole 15 miles surveyed, more than two sites which appeared sufficiently favourable for a floating bridge, to justify the labour of a minute survey. One of these was at Newnham, and the other at the entrance of the Gloucester and Berkeley Canal, at Sharpness Point.

On drawings Nos. 2 and 3, will be found the details of the survey of the Newnham portion of the river, and drawings Nos. 6, 7, 8 and 9, are made from surveys of the Narrows at Sharpness Point.

By the former plans, &c. it will be seen that the width of the river in the neighbourhood of Newnham, at high water, varies from 2,129 feet to 1,122 feet; and at low water, from 600 to 250 feet; and that the greatest depth at low water varies from 10 feet to one foot six inches. The low water channel runs close to the west, or Newnham shore; and it is stated by the oldest people of the neighbourhood that it has retained its present course, with but little variation, for the last 30 years, but that its depth and width are subject to great fluctuations.

During the time that this survey was proceeding, I caused the tides to be registered by a gauge fixed for that purpose at Newnham Nab, the results of which are given in note (A), on drawing No. 2, and by which it will be seen that from the first appearance of the flood tide to high water is only 1½ hour, the rise of the tide being from 15 to 19 feet (at spring tides) in that short space of time, 4 or 5 feet of which runs in suddenly and forms what is termed the Bore. This torrent, or rather cataract, is of course irresistible; it lasts, however, but for a few minutes, and the stream then runs at from 5½ to 6 miles an hour. The reflux of the tide is longer, and its greatest rate of current does not exceed 4½ to 5 miles an hour.

Now, excepting the few minutes when the Bore is running, the tidal currents in this part of the Severn do not present a difficulty of any magnitude to the establishment of a floating bridge. I therefore directed my attention to some mode of insuring a permanent channel of the requisite depth at low water, by means of a pier or embankment, run off from the eastern shore, so that by contracting the width and thereby increasing the scour of the river, it might maintain a clear channel between the landing-places.

The site of Newnham Ferry proving to be the narrowest part of this section of the river, offered the greatest facilities for carrying out such a plan, and I therefore caused borings to be made in the line of the requisite pier, and discovered rock at 10 feet below low water, as shown on drawing No. 5. The foundation proving so favourable, I proceeded to consider the details of the plan, when it appeared that in order to insure the requisite channel for a floating bridge, the pier would have to be projected so far into the river as to form a dangerous obstruction to the navigation, as well as a mischievous impediment to the flux and reflux of the tide.

As these objections applied with equal force to all the other parts of this section of the river, I turned my attention to that portion surveyed in the neighbourhood of Sharpness Point, plans and sections of which are given on the accompanying drawings, Nos. 6 and 7.

It will be observed on reference to the plans, that the low-water channel of the river, after sweeping the north or Purton shore, is thrown diagonally across to the opposite shore, at the entrance of the Gloucester and Berkeley Canal, by the Wheel Rocks, and that the width of the river is much contracted by the great projection of these rocks on the one side, and Sharpness Point on the other.

On

On the west side of this channel is a large isolated half-tide bank called the Prinn Sands, whilst a similar bank, called the Rudge Sands, runs off from Sharpness Point on its east side. When the river is much swollen by land floods it has sufficient power to maintain a deep channel between these sand-banks, but during dry seasons with heavy spring tides, the sands accumulate in the channel off Sharpness Point, so as to join the two banks by forming a bar. If the first of the flood tide could be made to pass up the channel along the Berkeley shore to Sharpness Point, instead of this bar there would be deep water; but from its following the opposite shore, it scours out the channel on that side to a considerable depth, and sweeps over the Wheel Rocks with great violence.

At the time the survey was made, namely, in July and August last, this latter portion of the channel had a sufficient depth of water for a floating bridge; but it appears, from the evidence of the oldest and most experienced pilots on the river, that the depth is subject to great fluctuations, it being sometimes dry, and very often covered with not more than one foot of water.

Now, to give certainty and security to the passage of a floating bridge at this site, it is obvious that it would be necessary to project its southern landing-place into the channel of the river beyond the before-mentioned bar, or to a distance of 600 feet from the wall of the Gloucester and Berkeley Canal; and this point being settled, I proceeded to consider the several other matters affecting the establishment of a floating bridge.

The most suitable position for such a bridge is shown by a red line on drawings Nos. 6 and 7, viz. from immediately above the entrance of the Gloucester and Berkeley Canal to the west side of the Wheel Rocks, taking the river in an oblique direction to the current. The width of the river at high water, on this line, is 3,250 feet, and at low water from 2,200 to 2,500 feet; the depth, at low water, of the northern half being 25 feet, with an uneven, rocky bottom, and the other half with a sandy bottom, and a gradually shallowing depth, as shown on the section drawing No. 7.

The flow of common spring tides at this site is 30 feet; but extraordinary tides rise so high as 32 or 33 feet. From the first appearance of the flood tide to high water is two hours and three quarters; it therefore follows that the tidal current must be very considerable.

To be perfectly informed on this most important point, I caused the current of the tide of the 11th of August last to be measured, and though it rose only 26 feet (being the 11th tide after the full moon), its greatest rate was from 500 to 600 feet per minute on the flood, and 400 feet on the ebb. This tide is represented by a very clear diagram on drawing No. 9, and on an inspection of which it will be thought strange that the current should be subject to such great fluctuations in short periods of time. It is, however, unquestionably produced by the number of sand-banks between Aust Passage and Sharpness Point, which, varying in shape and elevation as the tide advances, more or less entangle the current in its flow, tending sometimes to retard and at other times to accelerate its velocity.

But it is to be observed that the currents, as here laid down, are those due to a 26 feet tide. I could not succeed in obtaining similar continuous observations of a 33 feet tide, but I found that the greatest velocity of one which rose 31 feet was 700 feet per minute, or eight miles per hour on the flood, and rather under seven miles per hour on the ebb; and supposing such a tide had been accompanied by a south-west gale of wind, it is highly probable that its current would have attained (on the flood) to 9½ or 10 miles per hour.

To establish a floating bridge across such a torrent at right angles would be almost impracticable; but, as the site allowed of an oblique course, I caused the direction of the currents, at different periods of the flux and reflux of the tide, to be carefully laid down, so as to show their angle with the line on which the bridge would be established. Drawing No. 8 contains four of these current plans, viz. two for the flood tide, and two for the ebb; and having calculated, from the particulars thus obtained, the requisite size of the chains, and power of the steam-engines, to render a floating bridge safe and convenient, I found that it would involve an expenditure of not less than 70,000*l.*, which I deem perfectly unjustifiable, taking into account the disbursements incident to such a work, which, under such circumstances, would not be less than 1,500*l.* per annum.

In the preliminary Report, which I had the honour of forwarding to the Commissioners on the 5th ultimo, I stated that, although this inquiry was unsatisfactory as respected the establishment of a floating bridge, it fully confirmed the representations made to the Board, that great advantages would accrue to the property of the Crown, and to the public generally, from a good and safe communication across the Severn, in the neighbourhood of Newnham; and that as the surveys pointed out Newnham Ferry as an eligible site for a suspension bridge, I felt justified in studying a suitable design, in order to place before the Commissioners a plan and estimate for a work, which, though different in principle, would be cheaper and more convenient than a floating bridge.

The local advantages derivable from a bridge at Newnham, will be apparent from one or two examples selected from the traffic in coals from the Forest of Dean.

The towns and populous neighbourhoods of Nympsfield, Dursley, Wotton-under-Edge, &c. are supplied with Forest coals, which at present cost the consumers from 21*s.* to 22*s.* per ton. The price of these coals at the pit's mouth is only 8*s.* to 8*s.* 6*d.* per ton, the difference, amounting to from 13*s.* to 14*s.*, being the cost of carriage. The erection of a bridge at Newnham would make the centre of this district within 18 miles of the pits. Now it is well known that the common charge for conveying coals by carts and waggons from the Forest to Gloucester, which is 15 miles, is 7*s.* 6*d.* per ton, and that to Monmouth, which is about six miles, the charge is about 3*s.* per ton. At this rate of charge for conveyance, the price of coals in the above-mentioned towns, &c. would be only from 17*s.* to

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17*s.* 6*d.* per ton; that is, by opening a direct road conveyance for carts, the cost of transport, instead of being, as at present, from 13*s.* to 14*s.* per ton, would be reduced to 9*s.* or 10*s.* Nor would this be the only advantage to the consumers, for it seems that the frequent shifting from the railway to the barge, and again from the barge to the merchant's store, damages the coals so much, that cart-borne coals, that is, coals taken in the same cart from the pits to the cellar of the consumer, are now considered worth from 6*d.* to 1*s.* per ton more than "merchants' coals."

That these advantages to the consumers will greatly increase the demand for Forest coals in the district before mentioned there cannot be a question, but it is from the Stroud market that a bridge at Newnham will draw a great increase of custom to the Forest pits. At present this very extensive market seems principally supplied with Staffordshire coals, which are brought down the Severn, and undersell the Forest coals. The price of coals in the Stroud market varies, as I am informed, from 19*s.* to 20*s.* per ton. A bridge at Newnham would bring the Forest pits about 16 miles from Stroud, so that at the rate of charge for conveyance before stated, coals would be delivered by carts to the consumers in that populous and great manufacturing district, at from 16*s.* 6*d.* to 17*s.* per ton, or at a saving on the present cost of from 2*s.* to 3*s.* per ton. There seems no room for doubt that this saving in the present cost, in addition to the preference given to cart-borne coals, as before mentioned, would insure the Forest coals the entire command of this market.

The immense benefits that would arise to the farmers of the whole district from this change in the mode of conveying coals, from railway and river to carts and waggons, will be apparent. Their teams of horses, at those seasons of the year when they are not required on the farms, would be lucratively employed in this new trade.

Nor would the benefits to be derived from such a change in the transit of coals be confined to the distant consumers and agriculturists, but would be doubtless a source of profitable employment to the labouring classes of the Forest, enabling them, with the aid of a horse and cart, to obtain a competent livelihood for themselves and families.

In addition to these advantages, there would be that of bringing the consumer in direct trade with the miner, and the consequent saving of price, which now goes into the pocket of the merchant for profit.

I found also in the neighbourhood of the Forest a very prevalent opinion, that supposing a bridge to exist across the river in its vicinity, large quantities of its beautiful stone would be sent to the adjacent towns, more particularly the flat paving stone, door and window sills, &c. upon which the charges for conveyance by the present railways and river are very great.

These and the numerous other local advantages derivable from an uninterrupted communication across this part of the Severn, have been long seen by the people of the district, and the inhabitants of Newnham have made several attempts to accomplish such a work. Accordingly, a company was formed for tunnelling under the river near Newnham, as shown by drawing No. 4. At this place the river is about 1,500 feet in width, and it is reported that the company successfully advanced their works more than half way across it, when, coming into contact with the sand composing the bed of the river, their works filled, and were in a great measure destroyed, so as to occasion their abandonment after an expenditure of 12,000 *l.* This happened in 1811.

Since that time the inhabitants of Newnham have frequently had under their consideration the erection of a bridge, and it seems that at one time they went so far as to cause plans to be furnished. It does not, however, appear that competent persons were employed to advise them, and consequently the people of the neighbourhood were deterred from subscribing towards the work, although under other circumstances they might have made liberal advances.

The great public utility of a bridge at Newnham will be made apparent by drawing, on a map of England and Wales, a straight line from London to Newnham, continued through Wales. It will be seen that the route of the London and Stroud mail-road is along this line, and that at Monmouth it intersects the great mail-road into South Wales, *viâ* Gloucester, and follows its course by Abergavenny, Crickhowell, Brecon, Llandovery, &c., consequently forming the most direct route from the metropolis to the packet station at Pembroke. The distance from London to Stroud is 105 miles nearly, and from Stroud to Monmouth, *viâ* Newnham, is about 25 miles, making 130 miles; but the present Pembroke mail-road, *viâ* Gloucester, is 139 miles, or nine miles farther than by Newnham.

So far relates to travelling by turnpike roads. It must not, however, be overlooked, that the branch railroad now forming out of the Great Western, from Swindon to Cheltenham, *viâ* Stroud, passes in a very direct line towards Newnham, and, before bending off for Gloucester, &c., approaches to within five or six miles of Newnham. So that whether we look to the communication with South Wales, either by turnpike roads or railways now in formation, a bridge at Newnham promises to be of very great public utility. This will be made more evident by reference to the Sketch.

Vide Plans, No. 6.

It will also further appear that such a bridge, in connexion with the before-named railway, would command the preference of all persons travelling to the towns on the Welsh shore of the Bristol Channel, being not only nearer, but also avoiding the discomfort and delays of Aust Ferry, which at present are felt to be so great an inconvenience as to induce persons posting from London, &c. to prefer the circuitous road by Gloucester. Again, a bridge at Newnham would be on the direct route from Hereford, &c. to Bristol, Bath, &c.; and the travelling, which is very considerable, both by stage-coach and posting, between these places, *viâ* Aust Passage, would take this new route.

It now remains to be seen whether a safe and convenient bridge, suited to the navigation

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gation of the river, can be built at Newnham, at a cost which the expectations of traffic, derivable from the sources before alluded to, will justify.

Since the completion of the Gloucester and Berkeley Canal, the number of vessels navigating above Newnham have decreased yearly, and are now limited to the smallest class of sloops and trows. The practice is to drift with the tide, the great strength of which would prevent the requisite command over a vessel to pass her safely through a drawbridge. It follows, therefore, that a bridge in this situation must be sufficiently high for these vessels to pass under it. The objections which thus apply to a drawbridge extend therefore to any kind of bridge requiring the erection of many piers and abutments in the bed of the river, consequently a bridge of arches is inadmissible.

Suspension bridges are now common in this and other countries, and by affording the engineer a means of spanning large openings, and obtaining considerable elevation for the roadway at a moderate cost, are justly regarded as a most useful revival of a very old invention. The practical engineer knows, however, that valuable as these bridges are, their indiscriminate use is a great error, which has already produced many failures, and created considerable prejudice against their safety and durability.

But in the case under consideration, a suspension bridge is peculiarly applicable, and I have accordingly prepared the accompanying design after an attentive study of all the local circumstances affecting its usefulness and durability, as also connected with the free navigation of the river.

The site which I have selected is that which I surveyed for a floating bridge, (at Newnham,) as laid down on drawing No. 5. The width of the river is here contracted to 1,122 feet by the prominent and high land called Newnham Nab; and, as before stated, affords rock for the foundations at a depth of 10 feet below low water, as particularized by the table of borings given on drawing No. 5.

It will be seen on reference to the design, that I propose to construct one great circular tower in the middle of the river, just at the margin of the low-water channel, and one smaller one on each side, close to the shores, the abutments being built upon the shores, at small distances from the side towers. This arrangement leaves the navigation quite unobstructed, the river being spanned by two arches or openings, each 450 feet, (from centre to centre of the towers,) and by two side openings, one being 155 feet and the other 70 feet, making the whole distance between the abutments 1,125 feet.

This arrangement admits also of the roadway being elevated 63 feet at the side towers, and 75 feet at the centre tower, above mean or mid-tide level, which is reported to be ample for the class of vessels that now navigate the river; and as this opinion is corroborated by Mr. Clegram, who, in his capacity of resident engineer on the Gloucester and Berkeley Canal for many years, is intimately acquainted with all which relates to the subject, there is no room left for doubt on this important point.

In considering the details of this design, I have derived great advantage from my experience in the reparation of the Montrose Suspension Bridge, which is 432 feet span, and, excepting the Menai Bridge (560 feet span), is the largest in the kingdom.

To enter on all the details of the design is, I presume, unnecessary. It is, however, proper to state that I propose to have four great suspending chains, that is, two on each side of the carriage-way, and each chain to contain a square section of 60 inches of iron. The angle of the chains, with a horizontal line passing through their points of suspension on the great central tower, is 15 degrees 41 minutes, and at the side towers 4 degrees 47 minutes, the backstays being carried to their moorings at an angle of 20 degrees; the roadway to be 25 feet wide, consisting of a central carriage-road, and side footpaths, each four feet wide.

The roadway is to be constructed on a principle of trussing to be used in the reparation of the Montrose Bridge, which will effectually prevent undulatory motion, found so dangerous and unpleasant in many existing bridges of this kind.

The large cast-iron bridge, built by me some years since, across an arm of the sea near Plymouth, gave me full experience of the difficulties attendant on forming foundations in a rapid tideway, having a sandy bed; and as these were successfully and economically overcome by the use of a diving-bell, I propose to adopt the same method for laying the foundations for this bridge.

The facility which the neighbourhood affords for obtaining the stone, iron, and wood requisite in the erection of this bridge, will of course greatly reduce its cost, compared with other similar works less advantageously situated; and, with the studied economy I have observed in all the details of the design, will, I have no doubt, bring its cost within the following estimate.

ESTIMATE:

		£.	s.	d.
Masonry, including all foundations, embanked approaches, &c. &c.	-	25,477	-	-
Iron-work, in chains, &c. &c. - - - - - - - -	-	17,241	-	-
Roadway, &c. - - - - - - - - - -	-	5,883	-	-
TOTAL - - -	£.	48,601	-	-
And adding Contingencies at 10 per cent. on the above -	-	4,860	-	-
	£.	53,461	-	-

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To this sum must be added the cost of the present ferry, which is considered to be worth 100 *l.* per annum (as I am informed), and taking it at thirty years' purchase, would make its value 3,000 *l.* It is, however, beyond all doubt that a capital of 60,000 *l.* would be ample for perfecting this undertaking.

To justify such an expenditure, there ought to be a well-grounded expectation that the tolls of the bridge would produce an income of 3,000 *l.* a year, and taking into account the various sources from which traffic would be derived, as before pointed out, I have no doubt whatever that income would be fully realized.

I think it right to mention, that reports were prevalent at Newnham during the progress of the survey, that at least 30,000 *l.* would be raised in the neighbourhood, supposing it to command a priority of interest to an extent of five per cent.

To describe the various benefits which such a bridge would confer on the property of the Crown in the Forest of Dean, would lengthen out this Report unnecessarily, since they cannot be otherwise than obvious. It is, however, of importance I should state, that I found, on reference to the elaborate surveys of the Forest recently completed by Mr. Sopwith, in connexion with some trial levels which I have caused to be made, so as to extend Mr. Sopwith's survey up to the proposed site for the bridge, that, contrary to the impression which the excessively broken character of the country between Newnham and Coleford is calculated to convey to the mind, an excellent line of road may be formed between those places, as also to Little Dean, and thence to Mitchel Dean, &c.

To show the direction which the proposed lines would take through the Forest, and the extent of the accommodation to its several coal and iron works, I have laid them down on a skeleton plan of the district, copied from the Ordnance maps, which will be found with the other drawings accompanying this Report, and, with the following brief description, will suffice to show their value and importance as a means of opening the Forest.

From Newnham to Coleford the proposed line would leave the present road through Little Dean at the foot of the first hill (about half a mile out of Newnham), and skirting its side in a south-west direction to within half a mile of Hay Hill (the residence of the Rev. Mr. Jones), would there cross the Blaise Bailey Ridge by a deep cutting through its narrowest part, and entering the Valley of Blakeney Water near the Sudeley Iron Works, it would skirt the Abbot's Wood; thence, crossing Bullo Pill tram-road, it would run along the north-west side of Blakeney Hill Inclosure, and cross the Slade, or Green-road, into the Staple Edge Inclosure; thence, traversing its eastern side, and the southern side on the crest of the hill above Blackpool Brook, would pass over Ivy Moor Head to the Russell Inclosure, near Burnt Log Gate.

From this point two lines present themselves, one taking a northerly direction and crossing Cannop's Brook, about half a mile below Cannop's Bridge, would ascend into the present road to Coleford, along the north side of the Barn Hill Inclosure; the other line would keep its westerly direction through the Russell Inclosure to Cannop's Brook, a little above Park End, and enter the present road from Park End to Coleford, a little to the west of the entrance gate to Whitemead Park.

By the former line the distance from Newnham to Coleford would be 10 miles, but by the latter it would be 10 miles and three furlongs; though, to compensate for this extra length, there would be about one mile and three quarters of new road less to make. As to the inclinations of these lines of road, they would be much the same in either case, and are remarkably favourable, as the following particulars will show:—

NEW ROAD.

1 ¼ mile, at an inclination of 1 in 20 to 1 in 22.
1 ⅜ mile, at - ditto - of 1 in 23 to 1 in 25.
1 ½ mile, at - ditto - of 1 in 25 to 1 in 31.
¼ mile, at - ditto - of 1 in 31 to 1 in 35.
3 ⅜ miles, nearly level.

OLD ROAD.

1 ⅜ mile, at an inclination of 1 in 30 to 1 in 35.
⅝ mile, nearly level.
⅜ mile, at an inclination of 1 in 16 to 1 in 18.

Total length - 10 ⅜ miles.

The present road from Newnham to Coleford by Little Dean, Cinderford Bridge, &c. (called nine miles), is a succession of the most abrupt hills which, in several places, rise from 1 in 6 to 1 in 10 for a half, and even three quarters of a mile uninterruptedly; besides which, it is bad in every respect.

The proposed line to Little Dean, Mitchel Dean, &c. would commence at the same point on the present road as the before described line to Coleford, and taking a northern direction, would skirt the foot of the Camp Hill to the pass separating that hill from Chesnut Inclosure, at a short distance from Little Dean, where, crossing the present road from Little Dean to Gloucester, it would hold its northward direction through the low grounds, and

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Report on Dean Forest Bridge.

and enter the present Mitchel Dean road at Little Dean Lane-end toll-bar. From this point the road to Mitchel Dean is tolerably good. The length of this new road would be nearly 2¼ miles; the inclinations would be exceedingly favourable, divided into short undulations, nowhere exceeding 1 in 20, and the greater portion of it from 1 in 38 to 1 in 45. It also admits of an extension from the Little Dean Lane-end toll-bar to Mitchel Dean, by an almost perfectly level cut along the east side of Edge Hill Inclosure, and as it would open the veins of iron ore which crop out in this part of the Forest, it might at some future time be advantageously made.

By the new lines of road here enumerated, the principal coal and iron works of the Forest would be made accessible; the greatest portion of its woods and plantations would be opened up; and such a facility given for general travelling to Monmouth, and consequently to the numerous towns and important districts on the present Milford road, as also to Mitchel Dean, Hereford, &c. &c. as could not fail to produce advantages of the most important kind to the property of the Crown.

It may be well to state further, that the hills on the present road from Newnham to Lidney may be wholly avoided by a deviation to the east of the present road over the low grounds between Bullo Pill and the 12-mile stone, or by a branch out of the proposed line to Coleford in the Staple Edge Inclosure, as might be deemed most desirable after mature consideration.

As the roads on the Arlingham or eastern side of the river are level and generally good, little or nothing is wanting to be done to connect a bridge at Newnham with the numerous towns, and their populous manufacturing and agricultural neighbourhoods, comprising that large district.

As to the probable cost of the lines of road now pointed out, I am decidedly of opinion that it would not exceed the average expense of similar works, whilst the travelling which they would induce in connexion with the bridge, would, I have no doubt, produce a sufficient revenue to pay an interest on the outlay, and provide for their repairs. The only heavy work upon them is the deep cut required in Blaise Bailey Hill, and as that would produce good red sandstone rock, fit for the masonry of the bridge, which could be readily conveyed to the works, it would be advantageous rather than the contrary. As regards difficulties with the owners of the lands through which the proposed lines would pass, it is to be observed that by far the greater portion is through the Crown property, and it does not appear that in any case special damage would be sustained.

(signed) *Jas. M. Rendel.*

34, Great George-street, Westminster,
14 December 1838.

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Report on the River Axe, and Brean Point.

THE RIVER AXE AND BREAN POINT.

EXTRACT amended from the Report of Captain *Claxton* to the Directors of the Bristol and Exeter Railway, in 1838-9; the part having reference to the Bridgwater River omitted.

The River Axe is, like all the rivers in the Bristol Channel, dry or nearly so for several hours in each tide. It is not in fact navigable for more than five hours in every 12. When vessels are within it, they are quite secure from all winds, and at low water may take the mud in perfect comfort.

The bay and mouth is exposed to winds between west and north-east, round by the north; and from west to north-west there is nothing but the Skern Holmes to impede the swell or sea of the Channel, and even for a point or two to the southward of west, it is probable the swell sets in.

From about north-west round to the north-east the average distance of the Welsh coast is about nine or ten miles; the nearest point, Lavernock Head (the southern point of Penmuth Roads), and Sully Island not being more than seven miles from Brean Point, which is about one and a half miles from the entrance of the Axe at high water.

Between the river's mouth at high water and the entrance of the river (a mere gut at low water spring-tides,) there is a bank of mud, which dries to the extent of a mile at least, with a gradual incline, beyond which, with regular soundings, is the anchorage with three fathoms, close to the Head and How Rocks, gradually deepening as the distance is increased to the northward and westward to four, five, six, seven and eight fathoms, or more. A little more than half a mile from the Head, the shoal water extends to the north-north-east, having only two fathoms on it. There is, however, sufficient room for a good channel between the north-eastern end of a presumed breakwater and this shoal ground for all purposes of navigation, even at dead low water spring-tides, and at all other times the depth is ample, even for a frigate.

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With respect to anchorage and depth of water, there appears to be good holding ground near the Brean Head, in from three to five fathoms at low water; but there is no protection in bad weather from the west, round by the north to north-east by east.

I am of opinion a superb anchorage and outer harbour might be formed by an island breakwater, made with a slight curve, commencing from about 50 yards from the point of the Outer Hows, near Brean Point at Low Veres, and trending towards the north-east, or east-north-east, in the course of the ebb and flood currents, which here run very strong on the springs.

Such a place is much wanted, and would be a great advantage to the ports of the Channel if it were not, which I think it would be, a national benefit as a port of refuge; but such a work, with a rise of tide of more than 40 feet on the springs, would require a great outlay, as, to afford comfortable shelter, it should be 10 feet above high-water mark. A passage large enough for vessels should, in my opinion, be left between its western end and the Outer Hows, the extreme point of Brean Head, and both extremes should be fine, so as not to offer a bluff to the action of the tides; and this would, I think, prevent silt from collecting on either the ebb or flood. The How Rocks, whose western entrance is covered at about one-third flood, might easily be raised by either solid mason-work or loose stones from the cliff or hill, which is all limestone.

From inquiries I have made since our return, I find cattle and pigs are often landed above the entrance to the Avon, and not unfrequently at Portishead, or near it. The vessels bringing these cargoes then go to Newport for coal. It must be obvious, that if there were means of transit anywhere within the Axe at a moderate charge, and coals also in abundance at the same place, not one of these colliers would ever go past that river. They would save much in pilotage, and more in wear and tear, for the width of the Channel between the Holmes and King Road, and still more so above King Road, causes more thrashing out of sails and wear of cordage generally for sailing vessels (as the wind is rarely fair both ways), than all the rest of the voyage to and from Ireland, and I may add, from experience, often in the winter even to the West Indies. A vessel's time is all she has frequently to depend upon for profit, that is to say, the economy of time. She may arrive just before high water in or above King Road, and get rid of her cargo in time enough to drop down Channel with the ebb; but it could not often happen that she could make the passage up and the passage down on the same day, with a fair wind each way, although it is not a winding channel.

The entrance into the Axe appears very narrow, which is against sailing vessels; but with steam-tugs, which, if individuals did not at first find it their interest to maintain, the company, or any company interested in the profits on the coal, or otherwise, would, I am quite certain, find it their interest to establish, the difficulties would be done away with. These, like all other wants of a new port, would speak for themselves. Screw moorings, mooring buoys, jetties, piers, temporary loading docks in the mud, extended space by digging away both banks near the bridge (where there is back-water for scouring) would all follow as circumstances called for them. But the steam-tugs would make the navigation as soon as there was water over the bar, if the channel were no more than twice a vessel's width, quite efficient for a considerable trade; and from what I saw of the locality, and what I have seen steam-tugs accomplish in the Clyde, the Thames, the Mersey, and recently down almost to the Holmes from our own river, I have no hesitation in saying a good tug-boat could make four trips in and out of the Axe, with one or more vessels, depending for number up to six on their size only, placing them each trip in the fair way, whether for going to sea or for landing their cargoes, when inward bound, on the same tide, even if the vessels were above 200 tons; and there is nothing, on spring tides, to prevent a vessel of 1,000 tons using the river, and on the neaps there cannot, I think, be less than 20 feet over the bar. All the arguments which have been used in favour of a pier at Portishead, except the important one of cost, apply with full force to a station lower down the Channel, capable of access and egress at all times, and some in a much greater degree.

To illustrate this point I will suppose a vessel arrives abreast of Brean Down or Point at the moment when the state of the tides would satisfy the captain that he was too late for the Avon, whether by hours or minutes; he might steer for the Axe, which he might enter and depart from in an hour or so, and still be in King Road hours too soon to take the Avon.

A steam-vessel of tolerable capacity, even with a fair wind and tide, requires from two hours to two and a half to reach Rownham (Bristol) from the Holmes, and about twenty minutes more from that particular spot, in the fair way, where the captain would decide upon entering the Axe. From this spot, under similarly favourable circumstances, less than half an hour would see him inside the Axe; and, supposing all other matters running smooth, his passengers would be landed, and in Bristol, by a railway train, in less than an hour from the time of his entering the river; while, on the other hand, under circumstances the most favourable for the Avon that can be conceived, he could not reach Rownham (Bristol) under nearly two hours and a half; the passengers would then have to go two miles to the railway station.

For the case most favourable to the Axe we must again go to the spot in the fair way (a little to the west of the Steep Holmes); the captain calculating that the ebb will have made before or about the time of his arriving in Kingwood (when it wants two hours of high water, or what would be high water in King road), steers for the station in the Axe, and his passengers, as before, are in Bristol within the two hours, at the furthest, after he altered his course or made his mind up; while, had he proceeded he would have had to lay in King Road at least seven hours, to which is to be added two hours, to be occupied in the passage

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to King Road, and about one hour more for the passage from the anchorage to Rownham. Total, ten difference, 400 per cent. in favour of a more westerly station, somewhere in the line of the railroad. With respect to a station for departure to Ireland and Wales, gentlemen can make their own calculations, and in doing so will not forget they are in actual distance, by sea or water, about 30 miles nearer Ireland at Brean Point than at Rownham, Bristol.

A station approachable at all times is the grand desideratum, and this is not to be found inside any river in the Bristol Channel; but it is possible that one may be made on the Cliff of Brean Down, with floating contrivances for landing, or, perhaps, with flights of steps or inclined planes, provided a sufficient barrier were raised for protection against the seas and winds to which the present roadstead is exposed. Supposing a measure to be adopted for this purpose, in this locality, a road to the railway, and possibly a bridge over the Axe, would also be required, the distance from the entrance point of the Down or Hill being about 2½ miles from the nearest point of the line.

I beg to apologize for so hastily putting these remarks together; and while I impress upon the Directors, that my opinions are formed upon merely a superficial survey, I beg to assure them that, at any time that I can conveniently, or without detriment to the public service, complete this or any other nautical survey in conjunction with their engineers, and with the assistance of pilots, or persons better acquainted with the localities than myself, I shall be happy to do so, and thus assist in furthering the interests of Bristol, through the great undertakings of which she is the nucleus.

Your obedient servant,

(signed) *Christopher Claxton.*

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Petition of J. R. Ormsby Gore, Esq. M.P. and others.

CHESTER AND HOLYHEAD RAILWAY.

PETITION of *J. R. Ormsby Gore*, Esq. M.P. and Others.

The Petition of the undersigned Landowners, and others, of the County of Carnarvon,

Humbly showeth,

THAT your petitioners have been for some years past actively engaged, at considerable expense, in endeavouring to discover and carry into effect the best means of improving the communication between London and Dublin; and, after various diligent inquiries and a mature consideration of the project in its different relations, have adopted the opinion, that decidedly the best plan for realizing that great object is the construction of a new pier and breakwater at Port Dynllaen, in Carnarvon Bay, and the formation of a railway communication therewith.

This opinion has been only strengthened and confirmed by the Reports of Lieutenant-Colonel Sir Frederic Smith and Professor Barlow, and of Rear-Admiral Sir James Gordon and Captain Beechey, R.N., ordered to be printed 15th April 1840, documents which contain some assertions so unfounded, and some recommendations so very mischievous, that a sense of duty induces your petitioners to submit, with great deference, to the consideration of this Honourable House, some facts and reasons which, as they conceive, place beyond all doubt the great injury which must accrue to the public service if the erroneous views expressed in those Reports should in any way be adopted or acted upon by Parliament.

Before entering into a detailed examination of either of these Reports, your petitioners deem it right to submit to your Honourable House the opinions entertained respecting the appointment of the Commissioners, by a numerous, most respectable, and influential body of men. Early in the present Session, a petition was presented to Parliament, entitled, "The Petition of the undersigned Landowners, and others, of the county of Carnarvon," which bore the signatures of John Williams, high sheriff, the Lord Newborough, the Members for the county and borough, 12 justices of the peace, the mayor, and various other residents at Carnarvon, and which contained the following passages:—

"That the interests of various landowners along the existing mail-coach line through North Wales are deeply affected by the projects at issue, and that persons enjoying property at Holyhead, and in the Island of Anglesea, have the deepest stake in the inquiry.

"That, under these circumstances, the strictest impartiality was called for, both as to the persons to be selected and the proceedings to be adopted in carrying the Address of the House of Commons into execution.

"That such impartiality in the choice of persons appears to your petitioners not to have been exercised, and that, under all the circumstances of the case, there is every reason to believe that any report these persons may make in favour of a particular harbour and line of railway will be deemed by the public prejudiced and unsatisfactory.

"That the grounds upon which your petitioners have been induced to form the belief stated are as follow:

"That various public meetings and other proceedings took place before the Address already recited was moved, at which the relative merits of Holyhead Harbour and the Harbour of Port Dynllaen for the purposes intended were canvassed and discussed.

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"That at sundry meetings of this kind great pains were taken on the part of Lord Stanley, of Alderley, who is reputed to possess considerable property in the town of Holyhead and the Island of Anglesea, and whose son, the Honourable William Owen Stanley, represents the county in Parliament, to show that Holyhead was the fittest harbour for communicating with Ireland, and that a line of railway from Holyhead to a point in the London and Birmingham Railway was superior to a competing project from Port Dynllaen.

"That it appeared at one meeting (of which the Honourable William Owen Stanley was the chairman) that Captain Beechey, R.N. had, for or at the instance of the parties interested, surveyed the harbour of Holyhead, and reported upon its fitness for the intended purpose, and that his opinion in favour of Holyhead had been delivered in, and was quoted to the meeting by Captain W. J. Deans Dundas, secretary to the Ordnance.

"That under such circumstances, and after the decided part taken in the matters in dispute by the promoters of the Holyhead line, and the secretary to the Ordnance, the appointment of the said Captain Beechey, R.N., who had already given judgment professionally in favour of that conclusion which so greatly served the purpose and interests of the interested parties, was not, in the opinion of your petitioners, consistent with impartiality, and that perfect fairness to all persons and interests concerned or affected, which ought to be inseparable from the proceedings of Government, acting on behalf of the Crown, upon a public question of the very greatest importance."

With respect to Professor Barlow, your petitioners would simply observe, that he has always been considered the patron of Menai Bridge; and that it appears by the Third Report of the Select Committee on the Road from London to Holyhead, page 333, that "Mr. Telford submitted the whole of his experiments to the examination of Mr. Barlow, who is the mathematical master at Woolwich Academy, and who has published the greater part of them in his work on Timber and Iron. Mr. Barlow states, that the theoretical calculations which he has made correspond with those which are deduced from practical experiments."

Above all points discussed in the Report of Sir Frederic Smith and Professor Barlow, that at page 6, which regards the passage of the Menai Bridge, is perhaps the most material; and, singular to say, the main difficulty consequent upon an experiment of that kind has not been once adverted to in the reasoning upon it. When first the Holyhead Railway was projected, it was proposed to carry the line over Menai Strait on a wooden bridge, to be built for the purpose. In that intention, Mr. Stephenson, engineer to the line, concurred. Captain Beaufort, however, hydrographer to the Admiralty, in a Report to the Lords Commissioners of the Admiralty (ordered to be printed 30th March 1838), has stated, "it was not likely that a steam carriage, with a loaded train, would be allowed to traverse the present chain-bridge at Bangor; and a new bridge there, on arches, would add enormously to the expense of the undertaking, besides the objection that would be raised to such a bridge from the obstruction it would give to the navigation of the Strait." These serious difficulties to the original scheme having been so reasonably suggested, by an authority so justly entitled to respect, there remained the alternative of stopping the steam-engines, at either side of the bridge, and drawing the carriages over, one by one, by horses. This mode of passing Menai Strait, Sir Frederick Smith and Professor Barlow are content to approve, by briefly observing, that, "no important difficulty can be foreseen; the only question, therefore, is one of strength."

Against the opinion thus summarily expressed, of the only question to be considered with respect to this mode of passing Menai Bridge, your petitioners beg leave to protest, and to contend, that there are other and most important points to be kept in view, which require no light or hurried examination.

In the first place, it is to be remarked, that Mr. Stephenson himself, the engineer to the line, and a gentleman of distinguished abilities, appears to have nowhere committed himself to a positive opinion upon the propriety of this mode of crossing Menai Strait. Verbal explanations given by him at public meetings have been published in the newspapers, but nothing has been contained in the reports, bearing Mr. Stephenson's signature, which in any, the slightest degree, can be held to indicate that he entertains an opinion that the proposal is one which he regards as perfectly safe, proper, and worthy of a great national work of the kind.

This supposition will appear the more probable if we consult the opinion expressed by another eminent engineer. The Report on the various lines through North Wales, addressed to the Irish Railway Commissioners by Mr. Vignoles, contains the following passage:— "In continuing to consider the best possible course of a railway to Holyhead, the construction of a second bridge across the Straits of Menai is too great an undertaking to be seriously contemplated; besides, unless locomotive engines could pass over it, no end would be attained. Suspension bridges have been proved to be wholly unfit to sustain the weight and action of the engines, and no other description of bridge could be brought within any reasonable limits of expense. If Holyhead is to be the packet station, terminating a line of railway from London, the present bridge across the Menai Straits must be made use of, the locomotive engines starting from and stopping at each end. To lay down baulks of timber on the flooring of the bridge, and to horse the railway carriages over, one at a time, appears the simplest, and, perhaps, the only mode, taking care to adopt proper precaution to prevent the action of the strong gales to which this magnificent structure is exposed from seriously affecting, as they probably might, the adjustment of the gauge and level of the railway track, and to guard the rails from being interfered with by the passage of the ordinary traffic which must necessarily continue."

From this language it is clear that the strength of the structure is by no means "the only question." It will be necessary, amongst other things, to prevent the rails from being interfered

interfered with by the other traffic over the bridge, a task of no small difficulty, when we reflect that the main object in view is to make this the great thoroughfare for all communication, not only between London and Dublin, but also between Dublin and Liverpool and the North of England. If half the bridge, as has been proposed, is to be devoted to the railway, and the other half to the general traffic, adequate space will not be left for the latter, nor can it be kept free from contact with the rails. The dangers consequent upon collision, unsteadiness, or interruption under such circumstances, are so formidable, that your petitioners indulge in a strong hope that, if properly explained, a measure from which they are inseparable will not be sanctioned by the Legislature.

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This brings us to the real difficulty to be contended with, which is the great oscillation of a suspension bridge. Assuming, for the sake of argument, that the explanations respecting the strength of iron, given at pages 6 and 7, are correct, we shall still have this vital consideration to entertain, which seems to have been wholly overlooked by the Commissioners. The strength to support a given weight is one thing; but the power of retaining that weight steadily in a given position is another. The main question will thus be found to turn upon the danger to which the carriages would be constantly exposed of being thrown off the rails; a danger which was evidently foreseen by Mr. Stephenson, who is represented to have proposed that, "to prevent the waving motion which the passage might thus create, the carriages should be dragged across, one by one, so as to have their weight divided over the whole length of the bridge."

But, even on this alternative, the consideration just referred to cannot be passed over in silence. The action of the strong gales, which prevail up and down the Straits, is sure, whenever it arises, to disturb the roadway gauge. The extent to which this action is sure to affect the bearing of the roadway is great, and ought to have been precisely ascertained by the Commissioners, the more particularly, as it is well known to have been so strong as to rupture and break up the floorings of the present bridge. Such having been the case already, there is no room to doubt but that the recurrence of similar gales would dislodge the bearings and rails of the proposed line for horses. We thus perceive that, in calculating upon the stability of the structure, the effect of the action referred to ought to be particularly taken into account, which has not been done. The action is not a vibratory or swinging action, which would be attended with but little inconvenience, but it is a waving-up-and-down motion of the platform or roadway of the bridge, caused by the current of air, which, rushing underneath, and being confined by the piers and high land at either side, naturally rises to escape, and meeting the platform, lifts it up, the curvature of the catenary deflection yielding easily to its force. The gale passed, and the pressure just described withdrawn, the platform drops again with a jerk into the extreme tension of the chains. The height to which the whole structure is thus frequently lifted has been observed to be from five to eight feet. It is therefore evident that no analysis of the strength of this bridge can be complete until the momentum of this jerking action has been ascertained, and its equivalent weight added to the number of tons sustained; and it is still further evident that no proof of the mere strength of the chains can counterpoise the danger likely to arise from the constant tendency to jerk the train off the rail.

These are difficulties which, as your petitioners are prepared to show, were suggested in writing for the consideration of the Commissioners, by the present High Sheriff of Anglesea, who, travelling over the bridge, had ascertained that the mail-coach had been the same day thrown against the sides, and the horses thrown down. The Commissioners take no notice of the communication, and thus the main difficulty is avoided, which does not touch the tension or mere strength of the iron for barely supporting such a weight as a railway train, but which applies directly to the extreme danger which is sure to arise from the oscillation of an airy structure like this suspension bridge, one more or less swayed by all winds, upon which the mail-coach has been upset by the waving motion to which it is liable, and which has since been so shattered by storms as to have been rendered impassable for carriages, and only restored to use after an expense exceeding 10,000 *l.*, and more than a year's labour, which has still left the structure so insecure, that Lord Western has felt himself called upon, within the last month, to draw the attention of Her Majesty's Government to "its perilous state," through the medium of the public newspapers, and to recommend a particular plan for its improvement.

We are told that the time required to move the train over the bridge would be about a quarter of an hour, but we shall hardly find it safe to rely upon this assertion, if we bear all the facts in mind; the distance from one end or starting place to the other will be 600 yards, the carriages are to be moved, one by one, up an inclination of one in 40, the engines are to be detached and re-attached, all with perfect safety, in a gale of wind, in a quarter of an hour!

Your petitioners also deem it of consequence to mention that, by a clause in the Act for making Menai Bridge, any greater number than 20 oxen are forbidden to be allowed to pass over Menai Bridge, inasmuch as the Act recites, that it is inexpedient that any greater weight should have to be sustained at one and the same time in that way. This provision of the Legislature it has been found necessary to observe with great strictness, and to extend to the transit of other animals; respecting which, it is further observable, that the weight of 20 oxen and of one loaded railway carriage is about the same, namely, five tons.

Your petitioners most humbly but earnestly contend, that if the Railway Commissioners had not fallen into the mistake of holding themselves bound by the decision of the Naval Commissioners upon the harbour, they must have been led, by the following portion of their Report, to return the Carnarvonshire line as unquestionably that which is the best, cheapest, easiest, and quickest to make, and when made, is sure to answer all the various great public advantages expected from it, without let, danger, or risk of interruption.

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For Sir Frederic Smith and Professor Barlow declare, at page 11, "We have expressed our opinion that the best line from Chester to Bangor is the one proposed by Mr. Stephenson, and therefore it is with this line that the Carnarvon line (as we shall designate that advocated by Mr. Archer) would have to form a junction, if Port Dynllaen should be selected as the station for the Dublin packets."

* * * * * *

"Having described this line in sufficient detail, it is proper to state that it appears to have been selected with much judgment."

* * * * * *

"The foregoing Table shows that by adopting the line by Chester, Bangor, and Carnarvon to Port Dynllaen, there would only be about 88 miles and 55 chains of new railway to form, whereas by the Shrewsbury and Bala line there would be 146 ½ miles, and by the Worcester line 208 miles."

* * * * * *

"The comparatively small amount of capital that would therefore be required for the Chester and Bangor route to Port Dynllaen, is a strong argument in its favour; and it will be observed, by an examination of Tables (B.) and (C.), that there are other reasons which contribute to entitle that line to a preference."

TABLE (B.)

Names of the New Lines.	Miles to be Formed.		Population per Mile.	Average Coach Traffic per Annum, per Mile.
	Miles.	*Chains.*		
Chester, Bangor, and Carnarvon to Port Dynllaen -	88	55	4,836	18·723
Wolverhampton, Shrewsbury, and Port Dynllaen -	146	40	3,252	4·436
Oxford, Worcester, and Port Dynllaen - - -	208	10	3,936	7·819

"After a careful review of all the bearings of the case, we feel bound to state that the route by Chester, Bangor, and Carnarvon is, under present circumstances, the preferable one for a railway communication to Port Dynllaen."

"If Port Dynllaen had been considered the preferable station for the packets, we should have recommended that the railway should be formed from Chester by Bangor and Carnarvon to Port Dynllaen."

To these extracts, in which the Commissioners have recorded their opinion of the Carnarvon line, your petitioners venture to solicit the attention of your Honourable House, and to submit that Sir Frederic Smith and Professor Barlow have, in point of fact, pronounced the Carnarvon line to Port Dynllaen the one that ought to be made; but by a mistaken construction of their duty have accommodated the conclusions of the Naval Commissioners by reporting in favour of a far inferior line. This is manifestly at variance with the terms of their instructions, for the Address of your Honourable House to Her Majesty prayed for inquiry, and a report "upon the relative merits and the preference which ought to be given to the railways named therein;" and also for inquiry and a report "upon the best means of communicating by sea between Dublin and London in connexion with the said intended railways."

We thus find the Commissioners directed to ascertain, first, the best railway, and then the best harbour in connexion with it, for communicating with Dublin. We perceive further, that if this had been done, Port Dynllaen must have been the harbour selected, the line by Carnarvon to it having been by them pronounced the best. It follows, therefore, that the recommendations of both the engineer and the Naval Commissioners have been obtained by departing from the orders of your Honourable House, and that if their Reports are adopted and acted upon, the great object of all the recent inquiries will not be gained, which aims at the best railway, and the best harbour in connexion with such railway, for communicating with Dublin; an object which it is of the utmost importance to keep conspicuously in view, inasmuch as the Commissioners could not conclude their Report without confessing that the favourable nature of the country from Dudcot, on the Great Western, to Worcester, for a railway, the skilful manner in which the line in that direction has been laid down, and the accommodation it will afford to a district which cannot derive much advantage from any other line, will cause this project at no distant period to be carried into effect, after which its continuation to Ludlow would not be prevented by any difficulties of construction. From these observations, evidently introduced from a conscientious motive, it would almost appear, after all, that the best projected line, in the opinion of the Commissioners, as far as Ludlow, is Mr. Brunel's by Worcester; and that if further researches should open a way through the mountains, this is the one that ought to be made. If so, it is clear that nothing would be more imprudent than the commencement of an undertaking so arduous and thickly beset with obstacles and perils, as a railway across the Menai Strait, with a progressive series of most expensive additions to the works which have already been erected at Holyhead, without having met even in a remote degree the wants of the public service; while, all the time, the full prospect is before us of a more direct, expeditious, and superior route being

being completed in about the period immense sums shall have been uselessly wasted upon the scheme the Commissioners have erroneously recommended.

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The Report of the Naval Commissioners, your petitioners respectfully submit, demands the severest scrutiny; for upon the subject to which it refers information of the highest authority had previously been obtained, of which, however, Rear-Admiral Sir James Gordon and Captain Beechey have not thought fit to take notice. They have arrived at conclusions diametrically opposed to the opinions of Lieutenant Sheringham, who surveyed the three harbours of Holyhead, Port Dynllaen, and Orme's Head, by order of the Admiralty, pursuant to an Address of your Honourable House; but, although sensible that the opinions of the officer last named have remained unimpugned up to the present moment, and are understood to have been considered highly satisfactory by the Admiralty, they have not condescended to enter into any refutation of the strong case that has been made out in favour of Port Dynllaen. On the contrary, they have dealt in vague generalities, in specious and one-sided arguments, and in some assertions which the facts will not bear out.

Rear-Admiral Sir James Gordon and Captain Beechey assure the Lords of the Treasury, that having "proceeded to the places, they carefully examined into every circumstance bearing upon the question; and that, duly impressed with the importance of the subject, they have given it their full and most deliberate consideration." In order to judge of the correctness of this representation, your petitioners made inquiries at Port Dynllaen, where they have been informed, and believe it to be perfectly true, that Rear-Admiral Gordon and Captain Beechey were twice, the first time in a carriage, out of which they alighted, and walked along the beach for about an hour, and then left; the next time in the African steamer, when they came on shore, and Captain Beechey went out on the point with a chart in his hand for a little while, Admiral Gordon not removing from the landing-place. They stopped at Port Dynllaen for about three hours in all the last time, and returned to the Head without making, according to the opinion of those who observed them, any survey or taking any soundings, but writing in their log-book, the steamer being kept on the same track all the time they were there.

With this evidence of the practical meaning of the terms "careful examination, and full and most deliberate consideration," before them, your petitioners are less surprised than they otherwise would be, to find the Commissioners classing Port Dynllaen and Orme's Head together, and after disposing of them both as if there was no difference between the two, asserting that a better harbour could be constructed at Holyhead, and at less expense than at either of them. In contending against the correctness of this opinion, your petitioners labour under obvious disadvantages, inasmuch as the Commissioners have not thought proper to include in maps they have annexed to their Report the most important map of all, —that, namely, containing the plan on which the works they have proposed are delineated, and which, they add, they have transmitted to the Lords of the Treasury. In the absence of this essential document, without any description of the proposed works, or any detailed estimate of their expense, your petitioners still trust to be able to show that the proposition in question is wholly untenable, and that a better harbour cannot be constructed at a less expense at Holyhead than at Port Dynllaen; but, on the contrary, that a harbour can be constructed at Port Dynllaen for the sum named by the Commissioners, which would answer all the purposes of a packet station and asylum harbour combined.

The Commissioners say there is no river at Holyhead likely to fill up a harbour formed there: they might have extended their observation with perfect truth to Port Dynllaen, as to which they go on to assert (page 40),—"that as it is faced with precipitous cliffs of loose sand, 120 feet high, which are likely to fall away, and washed daily with the silt and sands of the Menai, there would be great probability of any harbour constructed there being rendered so shallow by the inclosure of a space for that purpose, and by the obstruction of the current which now scours the bay, that it would shortly become available only for vessels of a small draught of water."

To these injurious assertions, which it is somewhat difficult to grapple closely with on account of the general terms in which they are conveyed, your petitioners do not hesitate to give an unqualified denial.

The Commissioners affirm that Holyhead Harbour is not likely to fill up, because, amongst other reasons, some ironplates and old tools lost in 1817 were found, not imbedded in sand, in 1831. Let this statement, which must have been adopted from hearsay, be weighed against the testimony of Captain Hugh Evans, harbour-master of Holyhead, before the Committee of your Honourable House, on Post-Office Communication with Ireland; who stated in the year following, that a good deal of mud settled in the interior of the harbour, which was of continual occurrence, and cost 1,600 *l.* a year for dredging.

Upon this evidence—which, being that of the harbour-master of Holyhead, your petitioners take to be unexceptionable—it is submitted that the Commissioners overlooked a published fact, when they did not represent that there is a good deal of settlement of silt or mud in Holyhead Harbour, and that such settlement is of "continual occurrence."

The Commissioners describe the cliffs of Port Dynllaen as loose sand,—a new form of expression, the word cliff having hitherto signified a steep rock. Upon this point, your petitioners are content to state, that these identical cliffs of loose sand are coloured rock of the serpentine formation on Mr. Greenough's recently published geological map, which the Railway Commissioners refer to.

But whether these cliffs are sand or rock, no one can be warranted in asserting that they are likely to fall, inasmuch as your petitioners unhesitatingly assert, that no such thing has been known to have occurred within the memory of man; and there are no appearances whatever to indicate that such a thing is about to happen. As little is it true that the silt

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from the Menai would fill up the harbour, because the Menai is 20 miles off. And it is not true, again, that the proposed new pier and breakwater at Port Dynllaen would obstruct the current that scours the bay, because the breakwater would increase, rather than diminish, the actual scouring power of the tides. Upon this latter point the Commissioners are directly opposed by the Admiralty Report of Lieutenant Sheringham, which maintains that "as there would be no backwater or scouring action of the tide, except through the sound to seaward, which would be favourable, there is reason to conclude that the quays would be constantly kept clear from silt or deposit.

In these assertions there is matter which will enable The House to judge with facility the degree of authority fairly due to the opinions and recommendations of Sir J. Gordon and Captain Beechey. They state that the expense of the breakwater would cost more than all the contemplated works at Holyhead. This opinion must have been hazarded without reference to the published plan; for upon that the breakwater is marked for a refuge harbour, and its extreme length, by the scale, is shown to be only 800 yards. No person qualified to speak upon the subject will assert that a pier or breakwater for a packet station, in from 23 to 30 feet of water,—to which stones would not have to be carried from a distance by railway, as is proposed at Holyhead,—would cost anything like one half the sum given. The prices for work of this description, quoted by Captain Beechey, show that he ought to have been perfectly aware of the correctness of this observation.

A still stronger proof of the inattention of the Commissioners to facts lying directly before them is afforded in the observation that the stone would have to be water-borne, while the Admiralty plan of the harbour, published by your Honourable House, is distinctly marked at the water's edge, and in front of the proposed works, with the words "good stone in any quantity." The truth therefore is, that the expense of this water-borne stone would be the lowest it is possible to conceive—literally nothing more than knocking the stone off from the promontory close by and tumbling it into its place.

To the next assertion, that Port Dynllaen is particularly deficient in accommodation for building of any description, your petitioners again beg leave to refer to the Admiralty Report of Lieutenant Sheringham, who dwells upon the facilities it affords for the construction of quays and piers.

The Naval Commissioners having made up their minds, upon data which your petitioners have shown to be erroneous, that Holyhead is in every respect the most fit and eligible place for a packet station, they proceed to state that new works must be constructed there; of those new works they say they have sent in a plan—which however is not produced—and the expense of them, they add, will be 200,000 *l.*, but of that sum no detailed estimates or particulars whatever are given; nor does it appear that either Sir James Gordon or Captain Beechey have had any experience in naval or marine engineering which entitles a general and uncorroborated opinion given by them upon such an important subject to implicit credit. As they proceed they grow inconsistent. We are told that if the works they have delineated were executed, there would be accommodation for six steamers of the class of the Merlin and Medusa; but at the same time we are informed that every vessel sailing that sea would, in stress of weather, run for the quarter of a mile of harbour which would thus be formed, and then there would not be accommodation for the six steamers. The recommendation of the Commissioners, therefore, is a new harbour at Holyhead, which is to cost 200,000 *l.*, and which is foreseen to be inadequate when finished to the wants of the public service. So true is this, and so strongly did the Commissioners seem to feel its force, that they found it necessary to introduce a specific intimation that a suitable extension of their extension ought to be taken into consideration at the commencement of any of the works! The Commissioners tell the Lords of the Treasury they are satisfied that Holyhead may be made capable of accommodating six first-class steamers for a sum of 200,000 *l.*; but they are also satisfied that as soon as this accommodation has been furnished, passing vessels of every description will crowd in and block up the small additional space thus acquired; and hence they are still further satisfied that it will be proper, before any beginning whatever is made, to project other additional works; that is, extension upon extension, and be prepared to build out and out seawards, until, at the end of indefinite labour and incalculable expense, a harbour shall be made quite large enough for the acknowledged wants of the public service and the shipping interest along the Welsh coast. £. 200,000 will be enough to begin with, but no idea is suggested of the many more hundreds of thousands which will have to be called for before the second series of suitable extensions can be completed.

With respect to this unpublished extension plan there appear no reasons to doubt, in the first place, that about 200 yards in front of it there is a rock, discovered by Captain Beechey himself while surveying that coast, but not mentioned by him in any part of the Report; secondly, that in the very middle of the proposed harbour lie the Inner Platter Rocks, the surface dimensions of which are 95 feet by 70, with a depth of only three feet water at lower water spring tides, but of which, again, no mention whatever is made; and, thirdly, that instead of "about from 16 to 24 feet of water," as stated at page 41, there would not be, without allowing for silt, more than from 14 to 16 feet, according to the Admiralty Chart just published. Hence it is evident that, in the course of a few years, the outer harbour would be as inconvenient and objectionable as the present one, and unfit for the accommodation of the large-sized vessels, as, according to the harbour-master, Captain Evans, those of 250 tons burthen draw 14 feet, and those of 500 tons 16 feet of water.

In proceeding to address themselves to the remarks at pages 42 and 43, upon the passages between Kingstown and Holyhead, and Port Dynllaen, your petitioners regret to have

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to observe that strong symptoms of partiality are here distinguishable. In the first place, Sir James Gordon and Captain Beechey have taken the trouble to draw out and publish an incorrect diagram, to show that the effect of an accidental error of one point on the voyage from Port Dynllaen would be to throw a vessel directly on the Bray Banks. But when it shall have been understood that this hypothesis has been obtained, as your petitioners assert it has, by a misrepresentation of the distances upon Lawrie's Admiralty Chart, a good reason, they trust, will have been given for receiving with extreme caution any opinion, statement, or recommendation coming from so inaccurate a source. The effect alleged has been obtained by improperly elongating, or rather projecting, the most southerly of the Bray Banks, and measuring it as 14 nautical miles from the south buoy of Arling Ridges to the Kish Bank, while, in point of fact, it is only 12 nautical miles and a half. It is here most remarkable, that all the other banks have been laid down in the diagram correctly from Lawrie's Admiralty Chart, except the very bank misrepresented as being injurious to the Port Dynllaen passage; that one bank is incorrectly lengthened from three quarters of a mile to two miles and a half. Equally remarkable is an omission of which the author of the diagram has been guilty; there is in the direct passage from Holyhead a bank called Burford Bank, but it has been omitted. A reference to the chart will show that an error of one point would have taken a vessel from Port Dynllaen altogether clear of the Bray Banks.

Your petitioners have also to observe, that it is equally incorrect to assert that the distance from Port Dynllaen to the Kish is increased from 10 to 14 miles by any causes; and also, as is represented on the diagram, that there is a few hours' ebb at the latter place. In the Admiralty Report of Lieutenant Sheringham, the ebb is described as a ten hours' ebb, and your petitioners are prepared to prove, by any further evidence that may be desired, that such is the fact; at the same time they submit, that further evidence upon this point can hardly be required, when it is borne in mind that Lieutenant Sheringham devoted a year to his accurate survey of Carnarvon Bay, and was an actual observer of the ebb he has correctly described, whereas his brother officers were content to give some three hours or so to a rapid glance at the place, and must have adopted the opinion they have hazarded upon hearsay or supposition.

The argument founded upon Tables 1 A. and 1 B., to show the extreme accuracy with which the distance may be run between Holyhead and the Kish, &c., can have no weight whatever in deciding the question at issue, until it has been shown that a similar result cannot be obtained on the other passage. The impression to be produced by the reasoning founded upon the Tables quoted, is one of extreme surprise that officers, placed in the situation of judges, should have relied upon evidence so wholly one-sided. Why did not Rear-Admiral Gordon and Captain Beechey, having the Government steamers at their command, put their reasoning against Port Dynllaen fairly to the test by making a set of voyages to and from that place to the Kish, and publishing the result? They did make a series of voyages between Holyhead and the Kish; why not also make another series between Port Dynllaen and the Kish? It ought to be known that this was done when the question of preferring Kingstown to Howth Harbour was under discussion. It is all very well to refer to the case of the Dotterell to prove what may be done to and from Holyhead; but it is clear that no argument founded upon that case can tell in the smallest degree against Port Dynllaen, until the Dotterell, or some other fit vessel, shall have carried out the corresponding experiment at the other harbour with an unfavourable result. It is weakness in the extreme, upon a practical question like the present, to put forward the result of experience on one side, and words on the other. The fair trial should have been had in both cases; if it had, as your petitioners contend, and are prepared to show, the result would have been found nearly the same on both routes. And what then becomes of the argument?

The Commissioners insist upon the obstacle the Kish Bank would prove to the navigation of packets from Port Dynllaen. This is an old objection. It may be truly said of the Kish Bank, that it has been made use of as an argument against almost every improvement that has been proposed of late years, and proved of importance in none. When the line of communication by Port Dynllaen was proposed, the Dublin Chamber of Commerce took the subject deliberately into consideration, and after two days of minute inquiry, during which the opinions of practical men, well acquainted with the circumstances, were consulted, it was agreed on all hands that the Kish Bank formed no obstacle to the proposed route. It was raised again before the Committee of your Honourable House in 1832, by the officers in command of packets which had been in the habit of making Howth Harbour, and by them regarded just in the light described by the Commissioners. Fortunately, however, for the public service, the Duke of Richmond, then Postmaster-general, took a more correct view of the matter. The weight it ought to carry may be judged by the manner in which it was disposed of by his Grace, and the fact that subsequent experience proves that he was quite right in the opinions he expressed.

The argument was, that the Kish Bank, lying in the direct line of navigation between Holyhead and Kingstown, must prevent the passage from being made on the average without endangering the safety of the packets, and causing considerable delay. On this the Duke of Richmond, writing to the Lords of the Treasury, the 29th of January 1834, in reply to the Report of the Holyhead Commissioners, observes, "I do not consider it necessary to say more upon the danger to be apprehended from the Kish Bank, than that it was never experienced as such during the long course of years that the sailing-packets resorted to Dublin, long prior to the erection of the harbour of Howth; nor has it ever been found to endanger the safety of the Liverpool packets on their passage to and from Kingstown,

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although, from their greater draught of water, they must be exposed to a greater degree of risk from such a course than the Holyhead packets."

The truth is, that the Kish Bank lies in the direct route both from Holyhead and Port Dynllaen, and as far as it is an obstacle at all, it is as much so the one way as the other. Experience has shown that it is not an obstacle of moment as regards Holyhead, and there is no reason to doubt but that the equal experience, if we could refer to it, would show that it is as little an obstacle of moment as regards Port Dynllaen. How otherwise can we suppose that the Admiralty; that such authorities as Captain Beaufort and Lieutenant Sheringham, officers perfectly well informed and accurately acquainted with all the bearings of the question, and beyond all doubt perfectly disinterested and unprejudiced, could have expressed themselves as positively as they have done upon the subject?

The Commissioners say they cannot discover that the prevailing wind is more in favour of one harbour than another. This is a very strange assertion, inasmuch as the direct reverse has been declared in several official documents ordered to be printed by your Honourable House. Captain Beaufort reported to the Lords of the Admiralty, in 1836, that "the course between Port Dynllaen and Kingstown would be W. N. W. and E. S. E., so that the most prevailing wind S. W. would be a side-wind both ways, an advantageous circumstance to steamers, as it enables them to steady themselves by canvass." Captain Beaufort's testimony on this point is coroborated by the evidence of the late Captain Skinner, Captain Evans, and Lieutenant Browne, of the Royal Navy, which is to be found in the Appendix to the Report of the Committee in 1831 and 1832, on the Post-Office Communication between England and Ireland. According to these authorities the passage generally, and always in thick weather, would be made an hour sooner from Port Dynllaen, than if the course was direct between Holyhead and Kingstown. Captain Skinner referring to this point, says (question 753), "If, for instance, when I took Lord Anglesea over, I should have been at Howth at 11 o'clock, but it took me till near one before I got to Kingstown."

As to the point of prevailing winds, your petitioners would only further rely upon the communications that have passed between the heads of the various Government offices to show that the prevailing winds make a difference of an hour in favour of a side passage over a direct one. Now the passage to and from Port Dynllaen is a side, and that to and from Holyhead is a direct one; the advantage, therefore, accrues to Port Dynllaen. These, the accumulated testimonies of years of observation and repeated inquiry, may, your petitioners trust, be opposed with some force, against the declared inability of the Commissioners to discover anything one way or the other. Table 2, referred to at page 42, from the African log, has no date, and cannot, therefore, be compared with other authorities. Captain Beechey is understood to have been for years on the survey in question; the result of his observations should be given for the whole period of his employment. The harbour-master at Kingstown is bound by his office to register the wind, and that register for the last three years shows the prevailing wind to be south-west for eight months one week in the year; thus confirming the opinion of Captain Beaufort, already stated, and proving the decided superiority Port Dynllaen enjoys in this respect.

Lastly, the Commissioners come to the confidence an officer feels in running for Holyhead, "from its prominent situation, without any dangers about it."

Your petitioners humbly claim the attention of your Honourable House, while they controvert, as they feel they most satisfactorily can, an important declaration, which is quite at variance with established facts. They would repeat, that Captain Beechey found a rock, not known to exist before at Holyhead, but has not noticed the discovery in his Report, although its existence has become so well known as to cause it to be introduced into the nautical charts published this year, in which it is particularly named Captain Beechey's Rock. The opinion very recently entertained by Captain Beechey with reference to this rock, may be inferred from the circumstance of his having regarded its discovery as sufficiently important to call for a letter to the hydrographer of the Admiralty, sent to the Nautical Magazine, and which appeared at page 495 of the number of that periodical for July 1839, and ran as follows:

"Sir,—I have to inform you of the discovery of a rock which will endanger large vessels passing close to the Skerries at low water. It bears N. 47° W. (N. 20° W. mag.) exactly one-third of a mile from the Skerries' Lighthouse.

"The lighthouse opens its own width south of Pengarron mountain with the rock.

"There is a great overfall upon it when the tide is running either way, and there is deep water all around it.

(signed) "*W. Beechey.*"

It thus appears that in July 1839 Captain Beechey wrote to the Admiralty that he bad discovered a rock which "will endanger large vessels sailing past the Skerries' Lighthouse;" and that in January 1840, the same officer made a report to the Treasury, for the information of your Honourable House, which describes a proposed barhour as being without danger, which will have this very rock 200 yards opposite its mouth.

The next authority to contradict the Commissioners and prove that there are dangers here, is Captain Hugh Evans, the harbour-master of Holyhead, already quoted, who deposed as follows before the Select Committee of your Honourable House, on the Post-Office Communication with Ireland: "Is there not some difficulty in entering the harbour round the pier? We have got sailing directions now printed, and we have warps and boats and everything at hand, and by prompt assistance they are got in.—Do not accidents frequently happen in attempting to get in? We have had several; the ground outside has been so raked with anchors; last year there was a chain and two anchors laid across, and that has

saved

saved several; but there have been a good many wrecks to the leeward of the harbour, many of them for the want of knowing how to come in better. * * * In its present state, is not Holyhead Harbour a remarkably difficult harbour to sail in with a large ship? If they come in with a wind at north-west, it is, and several have been lost; it is at present not a fit place for large ships at all in a gale of wind.—How many vessels have you known outside the harbour attempting to come in? I have often seen two or three ashore at the same time."

In 1833, Captain Evans bore testimony again to the danger of Holyhead Harbour, in a letter to Mr. Telford, printed in the Appendix to the Tenth Report of the London and Holyhead Road Commissioners, page 14, in which occurs the following passage:

"The winter gales have been very violent, and at several times coming on suddenly, the disasters along the shores of the Channel have been greater than usual. No damage occurred to the pier, but four brigs drove on the rocks to leeward of the harbour, in attempting to get in during heavy gales; two of them became total wrecks, and two were got off. I am happy to state no lives were lost, and that the Commissioners' storm-boat has been of the greatest service in taking out warps and rendering assistance to vessels in distress. I cannot omit stating to you the particulars of one instance, showing the usefulness of that boat; viz. on the 3d of December last, during a violent storm from the north-west, the brig Iphigenia, from Quebec to Newry (notwithstanding warps had been twice taken out to her), drove to leeward on the Pibro Rocks, where she went to pieces."

The only other reference your petitioners have to make upon this point, is the following: in the whole of Laurie's New Pilotage Directory, Holyhead is the only harbour of which it has been found necessary to give a map and plan, to guide mariners from the dangers that beset it. "The degree of confidence they ought to feel in running for it," may be inferred from the following minute specification of the risks they are about to encounter:

"1st. That whenever the red light at the end of the pier can be seen, a vessel may run right in and be sure of being to the northward of the Platters.

"2d. That any vessel not drawing more than 16 feet may run in, even at low water, in case of necessity, when there will be no danger but what ship, cargo, and crew will be saved; though if there is a heavy sea setting in, the former may receive some damage.

"3d. That in running in, a stranger should keep good way on his vessel and shave very close round the pier-head, so as to shove at once into the harbour, and thus avoid the danger of getting on the rocks to leeward.

"It has been farther observed, that all vessels running for the harbour in a gale at N. W. should have both anchors ready with a good after-sail, and steer close in with the pier-head, and not to start, tack, or sheet, until they are as far in as they can fetch within the pier: the foresail may be hauled up when becalmed by the pier. From the want of these precautions many vessels have been driven on shore.

"On the Platters, to the north of Salt Island, there is now a black buoy.

"The outer point of Holyhead Bay on the east, opposite to Salt Island, is Cleopatra Point; and this point forms the south end of a slender bay called Church Bay; the bottom of which having a depth of five to seven fathoms, is generally foul.

"Cleopatra Point bears east E. ½ N. about a mile and a half from the north end of Salt Island, and a reef of foul ground extends from and about this point to a considerable distance, and along shore through the greater part of Church Bay. At half a mile E. ½ S. from the north end of Salt Island is a sunken rock of nine feet at low water, called the Stag, which will be left on the western or larboard side on entering the harbour as above directed. The buoy on the Platters, and another at some distance from the pier-head, will be seen. The first, on entering as above, will be left on the starboard, and the second, on the larboard side."

There is yet a point which demands the most serious attention. The Committee of your Honourable House upon the Communication between London and Dublin, in 1836, adopting the prayers of the petitions referred to them, reported in favour of a survey for an asylum harbour as well as a packet station; but it would appear that the Lords of the Treasury, in applying to the Lords of the Admiralty for this purpose, omitted to make mention of an asylum harbour, and confined their application for information to a packet station. The officers employed in this service, however, knowing, it is to be presumed, how much an asylum harbour was wanted on this coast, and seeing how well Port Dynllaen was adapted to be one, did not fail to bear direct testimony to that effect. Not so Sir James Gordon and Captain Beechey: they are completely silent upon that head of inquiry.

Your petitioners would now beg leave to supply a capital deficiency in the Report of the Naval Commissioners, by bringing under the notice of your Honourable House a few of the many unimpeachable testimonies which practical and experienced men have borne to the decided merits of Port Dynllaen as a packet station and safety harbour.

From a statement of facts, verified by 86 shipowners, pilots, masters of vessels, and others employed in the trade and navigation of St. George's, the English, and the Bristol Channels, and addressed to William A. Maddocks, esq., formerly a member of your Honourable House, your petitioners quote the following passage:—"That if the intended improvements be carried into effect, and a breakwater erected on the perpendicular rock, called Carreg-y-Chwislen, this would be one of the best and safest harbours in the kingdom.

"That vessels might, with the greatest ease and safety, beat in or out at any time during the day and night, there being no strong currents or difficulties of any sort to encounter; the shore is a bold one, with gradual soundings, which prevail over Carnarvon Bay."

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* * * *

"That a south-west wind prevails on these coasts eight months in the year, which will serve a vessel from Port Dynllaen to Dublin, or from Dublin to Port Dynllaen, so that she may perform either passage upon a stretch without making a tack."

From a Report by Mr. Thomas Rogers, engineer, and lighthouse builder to the former Lords Commissioners of the Revenue in Ireland, your petitioners quote the following passages:

"The harbour is naturally a safe retreat from nearly every point of the compass, and in its present state has given security to numbers; even strangers driven on these dangerous shores have found here an asylum easy of admittance, and perfect in security; and those that are acquainted with it make it a stopping place to wait a favourable wind, as may be seen by the return of the coast officer for several years back, from which it appears that several hundred vessels take shelter there in each year. The 28th August 1806 I saw 21 vessels lying here in safety within the Old Pier in a storm from the north-east, which is directly into the harbour, and I was informed that 41 vessels had sheltered there with the wind blowing hard from the south a few days before."

* * * *

"At extraordinarily low water, I found a good depth in every part within it even at a short distance from the shore, and without rocks, bar, shoal, or any other interruption to a safe and easy entrance. The ground is good anchorage (tough clay), the currents of the tide are slow, and their course advantageous; and even in the greatest storms the sea is but little agitated within the bay or harbour, as may be observed by the houses on the shore being built nearly to the high-water mark.

"The harbour is expansive, being about a mile and a quarter from the head to the opposite shore, with four, five, and six fathoms water; the first depth reaches within a short distance of the shore.

"The tide of flood sets into the harbour round Port Dynllaen Head the first two hours; it then returns the same course, in which direction it continues till low water.

"On the opposite side of the bay the current of the tides sets into the harbour two hours after the flood commences, and continues that direction until after low water. This is a favourable circumstance for sailing in or out; for by getting into either of these currents, as the circumstances of the case may require, great assistance is given in contrary winds or calm, a property not possessed by the best harbours.

"A breakwater, that can be built here for a small sum, when compared to its value, would extend its influence to the whole trade of the United Kingdom, through the Irish Channel, and would often afford protection to those from the Western World bound up the British or Irish Channel when caught by adverse winds on the coast of Ireland; it would be not only a place of security in storms, but, being a central situation, easy of entrance and departure, and so near the open sea that it would become the principal stopping place for those bound through the Channel. The great extent of the bay, and easy admittance within the proposed pier, are of much importance, for vessels can beat in or out, that would be excluded from other harbours in the Channel, or locked up within them by contrary winds."

* * * *

"Port Dynllaen is two points to windward of Holyhead during the continuance of the most prevailing winds; these winds are favourable to and from Dublin, and vessels can depart and arrive at any period of the tide; the currents are always favourable, and never strong; the entrance extensive and deep, without rocks, bar, or sand, that can be feared in beating in or out; the advantage of being in the open sea directly from the pier is great. The hills called the Rivals, that form the eastern bounds of the harbour, the Nevin and Madryn mountains behind, give the most perfect direction to the harbour, and can be seen at a greater distance than half-channel over."

Mr. John Smith, of Liverpool, author of a plan of Holyhead and Port Dynllaen Harbours, both on the same scale, published in 1836, and an authority to be depended upon in nautical questions, makes this observation: "Any nautical man, unbiassed by any other motives than the protection of ships in the Channel, by 'looking on this picture and on that,' can have no hesitation in making his selection as regards the capacities or capabilities of the improvements of the two harbours. With regard to the situation, a cursory glance at the chart by the mariner, uninformed by the local facilities for putting to sea, will naturally enough observe that this harbour is too deep in Carnarvon Bay for general purposes, under the idea that they could not easily put out with westerly or north-westerly winds. This is the only plausible argument which the supporters of Holyhead have to urge against this station; and these utterly disappear when it is known that by means of the tide, the flood running into the bay through the Sound, and out (to the eastward) round the lower or south side during the first two hours only, and the ebb running in the opposite direction the remaining ten hours, a ship has, at any time of the tide, and with any wind, easy and safe ingress or egress; a favourable peculiarity, possessed by no other harbour with which I am acquainted."

Lastly, Lieutenant Sheringham, after having been employed by order of the Admiralty for more than a year, upon a careful survey of Carnarvon Bay, reports his deliberate opinion of Port Dynllaen in these clear and unhesitating terms:—"On the west side of the bay convenient quays and a pier might be built, where large steam-vessels, drawing 15 feet of water, might always lie afloat, to the number of eight, or more, provided these quays were protected by a breakwater connected with the above-mentioned rock 'Carreg-y-Chwislen,' and

Appendix, No. 18.

Petition of J. R. Ormsby Gore, Esq. M.P. and others.

and so placed with relation to the pier, that a clear channel should be left through the Sound for the passage of vessels into and out of the harbour, without exposing them to any body of sea. With such protection, I have no doubt that vessels lying alongside of the quay would invariably be in smooth water.

"As there would be no backwater or scouring action of the tide, except through the Sound to seaward, which would be favourable, there is reason to conclude that the quays would be constantly kept clear from silt or deposit—a consideration of great weight in the formation of a harbour.

"This harbour would be peculiarly easy of access or departure, as the Rival Mountain would insure a good land-fall, as from the nature of its approach and its excellent shelter, steam-vessels would leave and arrive at their moorings in smooth water, and as in stormy weather they might make a slant out, instead of being obliged to stem a heavy breaking sea.

"In the event of any accident happening to the engines, the harbour might be regained with facility under canvass.

"Having thus described Port Dynllaen, and pointed out its peculiar advantages of approach and departure, its excellent shelter, its clean anchorage, and the facility it affords for the construction of quays and piers, I may venture to give my opinion that it is well calculated for a packet station, and that there is no other port on the west coast of Wales which could be so well or so economically adapted to that purpose.

"The foregoing advantages must also have great weight when considering it in the light of a harbour of refuge. The whole coast of Wales included between Milford and Liverpool presents no place of safety for which a vessel in distress can run in bad weather, St. Tudwall's Roads being by no means, under any circumstances, a safe roadstead, and all the ports being bar-harbours, to be taken only in the daytime near the top of high water, and then with some difficulty; if, therefore, it is desirable that the trade of St. George's Channel should have a harbour of refuge on this coast, then there is none so well adapted to that purpose as the Bay of Port Dynllaen might be made. It is situated nearly midway between the Small lighthouse and Liverpool; it has an excellent light (Bardsey) within 14 miles of it on one side, and a second light (the Stack) within 23 miles of it on the other; it has an approach perfectly free from shoals of any kind; and the adjacent mountains, being the most remarkable in North Wales, would serve as infallible marks to point it out.

"As vessels navigating this channel usually draw water 15 or 16 feet, ample room might be found in Port Dynllaen, by a judicious harbour-master, for 10 large vessels, while smaller ones, such as the ordinary class of coasters, might either be anchored further in-shore, a portion of the day being set apart for that purpose, or they might take the ground in perfect safety.

"As a refuge-harbour, however, it would only serve on a small scale; yet, though not calculated for the reception or rendezvous of a very large number of vessels, there is no other place on this coast possessing similar advantages. It has also been urged against Port Dynllaen, as a refuge-harbour, that it is too deeply seated in Carnarvon Bay; but such a condition appears to me in its favour, as it is more likely to meet the necessities of distressed ships, and it is not so deeply embayed as to prevent them from resuming their voyage with facility when required."

For the various facts and reasons adduced, your petitioners humbly submit to your Honourable House that the Reports of Sir Frederic Smith and Professor Barlow, and of Sir James Gordon and Captain Beechey, are erroneous, and, if adopted, will only lead to public disappointment and failure.

That no railway can be carried over Menai Bridge without imminent danger to the lives of the passengers, and, in severe winters, an interruption of the communication between London and Dublin.

That a better line of railway, in an engineering and economical point of view, can be constructed from Port Dynllaen, and that the great route of international communication will by that means be kept perfectly free from danger or the liability of interruption.

That a new pier and a breakwater may be constructed at Port Dynllaen for a sum not exceeding 200,000 *l.*, which would render that harbour much more commodious than Holyhead for general purposes of navigation, and at the same time an excellent safety-harbour also.

That Holyhead, on the other hand, cannot be rendered a safety-harbour or a packet station for the larger class of steamers, and that the expense of improving it, in order to place it upon an equality with Port Dynllaen in point of accommodation, would not be less than half a million sterling.

Your petitioners therefore pray your Honourable House to refer the premises to the consideration of a Select Committee for the purpose of impartial inquiry, and for securing to the public, as originally proposed by your Honourable House, the best line of railway for communicating between London and Dublin, and the best port, both as to a packet station and asylum harbour, in concurrence with such railway, together with the best means of carrying the same into execution, and to take such other measures as to your Honourable House shall seem advisable.

J. R. Ormsby Gore, M.P. for Carnarvon County.
Wm. Bulkeley Hughes, M.P. for the Carnarvonshire Boroughs.
John Williams, late High Sheriff, Carnarvonshire.
C. W. G. Wynne, Carnarvonshire.
Wm. W. E. Wynne, Blaen y Cwm, Penmachno.
&c. &c. &c.

Appendix, No. 19.

Appendix, No. 19.

COMMUNICATION BETWEEN LONDON AND DUBLIN.

Copy of a PAPER, entitled, Replies to certain Accusations made against the Naval Commissioners appointed to inquire into the best means of Communication between *London* and *Dublin*, by *J. Ormsby Gore*, Esq. M.P. and others, in a Petition presented to the House of Commons 1840. Prepared in pursuance of a Precept of The Honourable House of Commons, dated the 11th April 1842, calling for Copies of any Correspondence or additional Report in explanation of the Report of the Naval Commissioners, Rear-Admiral Sir *James Gordon* and Captain *Beechey*, R.N., dated the 14th day of January 1840, relative to the best means of Communication between *London* and *Dublin*, that may have been received by the Board of Admiralty since that time, together with any Map, Plan, or Diagram that may be annexed thereto.

Admiralty,
18 April 1842.

H. F. AMEDROZ,
Chief Clerk.

Replies to Accusations against the Naval Commissioners.

REPLIES to certain Accusations made against the Naval Commissioners appointed to inquire into the best means of Communication between *London* and *Dublin*, by *J. Ormsby Gore*, Esq. M.P. and others, in a Petition presented to the House of Commons 1840.

Accusation.	*Answer.*
1. "The Commissioners affirm that Holyhead Harbour is not likely to fill up, because, among other reasons, some iron plates and old tools lost in 1817 were found not imbedded in sand in 1831. Let this statement, which must have been adopted from hearsay, be weighed against the testimony of Captain H. Evans, the harbour-master of Holyhead, before your Honourable House on Post-office Communication, who stated in the year following that a good deal of mud settled in the interior of the harbour, which was of continual occurrence, and cost 1,600 *l.* a year for dredging."	The statement alluded to was not adopted from hearsay, but was received direct from the workmen who were employed in the diving-bell, and was afterwards corroborated by personal examination of the bottom in the diving-bell by Captain Beechey, Mr. Provis, and two workmen. Whilst in the diving-bell these persons bored down in several places and found the first three inches coarse sand, the next four inches sand and clay, and then solid clay as far as they could reach; clearly showing that no deposit of mud from the harbour had taken place in these situations. As to the sum of 1,600 *l.* a year having been expended in dredging Holyhead, as asserted, the whole amount of expenses of this nature which has been incurred from 1828 to the present time (1840), has been only 1,200 *l.*, and this occurred between the years 1828 and 1834, since which no dredging has been necessary; and the necessity for this dredging arose from the bank of mud in the inner part of the harbour being in a loose state, owing to large portions of it having been removed to fill up the space between Parry Island and Holyhead Island, and to construct a roadway in that vicinity. The bank lying thus in hollows, portions of it used to be carried away during strong gales and high tides and deposited in the outer part of the harbour; but the bank having since assumed its natural slope, no deposit has taken place so as to render dredging necessary since 1834.*
2. "The Commissioners describe the cliffs of Portbdynllaen as loose sand;" * * * upon this your petitioners state, that these identical cliffs of loose sand are coloured rock of serpentine formation in Mr. Greenough's Geological Map."	We are utterly surprised at such a contemptible attempt at refutation as this being put forth by the petitioners; as well might they assert that no cultivated lands or estates can exist between the Rivels and Carn Bonfeau, because all that district is coloured serpentine rock in Mr. Greenough's Geological map, a fact of which some of the petitioners, whose estates are situated in that district, are perhaps the best judges; and as well might they assert that no railroad could come through

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* Mr. Provis, the civil engineer to Board of Works at Holyhead, and Mr. Hugh Evans, the harbour-master, will attest these facts.

Accusation.	*Answer.*
	through that district on account of the expense of cutting through these hills of serpentine formation. Geologists know full well that Mr. Greenough's valuable map is not intended as a reference with regard to limited portions of the superstratum of any district. If the petitioners had consulted the Plan of Porthdynllaen, by Lieutenant Sheringham, whom they quote as of unquestionable authority, they would have seen the whole of Porthdynllaen Bay, with the exception of the extreme point, skirted by steep earthy cliffs, and that the extreme point alone is marked as being rocky.
3. "As little is it true that the silt from the Menai would fill up the harbour, because the Menai is 20 miles off." * See the plan herewith transmitted, on which the depths of water in 1737 are marked in red ink.	The entrance to the Menai strait from the mouth of the Channel, through the Caernarvon sands, instead of being 20 miles off, is exactly 11 miles. That there has been a considerable deposit in Porthdynllaen Bay, may be satisfactorily proved, by comparing the plan of that place, by Lieutenant Lewis Morris, made by order of the Admiralty in 1737, with that executed by Lieutenant Sheringham in 1838, by which it will be seen that where there was 30 feet water a hundred years ago, there is now only 16 or 18 feet, and that the whole of the Bay generally has filled up from 8 to 12 feet during the abovementioned period.*
4. "It is not true that the proposed new pier and breakwater at Porthdynllaen would obstruct the current that scours the bay, because the breakwater would increase rather than diminish the actual scouring power of the tide."	The Commissioners did not state that the breakwater would obstruct the current, but on the contrary, they say, page 40, line 14, of their report, "If it were proposed to build a breakwater and allow the tide to rush through the anchorage and the sound, the harbour would be greatly inconvenienced by the current;" clearly implying that the proposed breakwater would increase the current through the anchorage rather than obstruct it.
5. "A still stronger proof of the inattention of the Commissioners to facts lying directly before them, is afforded in the observation, that the stone would have to be water-borne. * * * The truth is, that the expense of this water-borne stone would be the lowest it is possible to conceive;* literally nothing more than knocking the stone off from the promontory close by and tumbling it into its place."	The breakwater proposed by the petitioners, extends from Carreg-y-Chwislan towards the centre of the bay, leaving a channel between it and the promontory from whence they propose to procure the stone.* This channel is, in its centre, upwards of five fathoms deep at low water, and is upwards of 1,200 feet from the point to the beginning of the breakwater, and we do not understand how the stone is to be conveyed to the breakwater unless it be water-borne. To knock it off the promontory and tumble it in, as proposed

by the petitioners, would fill up the very channel they intend to leave open, and unless the stone be water-borne, every inch of this channel must be filled up, and a tram-road carried along it, eight or nine feet above high-water mark, which would require about 400,000 tons of stone to effect, before a single stone could be tumbled into its place for the erection of the breakwater.

And then they would have a pier and not a breakwater, with a passage inside it, for the use of the packets, and for the tide to rush through to prevent deposit as they have proposed. So that it is a reckless assertion to say that the stone requires literally nothing more than being knocked off and tumbled into its place.

It is equally untrue that "the expense of the stone would be the lowest it is possible to conceive," for, according to their plan, the stone must be first knocked off, then lowered into vessels from a pier, which also would have to be purposely constructed, and carried thence to the breakwater; and as the situation of the proposed breakwater lies in the strength of the tide, which runs from two to three knots, and is exposed to heavy seas, the difficulty of bringing the vessels to the spot, and the numerous

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* See the plan annexed.

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Replies to Accusations against the Naval Commissioners.

Accusation.	Answer.
	numerous delays consequent upon bad weather, would raise the price of the stone, per ton, to a considerable amount.
6. To the next assertion, that Porthdynllaen is particularly deficient in accommodation for buildings of any description, your petitioners again beg leave to refer to the Admiralty Report of Lieutenant Sheringham, who dwells upon the facilities it affords for the construction of quays and piers.	The construction of quays and piers, which may be run out from the foot of the cliff, does not in any way bear upon the question of accommodation for buildings and works necessary to a large packet establishment. It is only necessary to refer to Lieutenant Sheringham's plan to show that the cliffs rise at once from the high-water mark to nearly 100 feet, and in places more; and consequently, unless the sea were to be walled out, all these buildings must be erected on the top of the cliffs; and in that case everything would have to be carried up inclined roads, as stated in the Report.
7. This paragraph, commencing with "the Naval Commissioners having made up their minds," and ending with, "Suitable extension can be completed," accuses the Commissioners of inconsistency for recommending a port, which, when made, they say will be inadequate to the wants of the public service.	The Commissioners were desired to report upon a harbour for packets, and not upon an asylum harbour for the passing trade of the Channel; and convinced that the subject of an asylum port, in connexion with a packet port, could not have escaped the attention of the heads of the department, from whom they received their instructions, they confined their report to a packet harbour, and limited the space to be enclosed to what would be sufficient for the number of packets required to perform the packet service. The Commissioners, however, thought it right to notice, at the end of their Report, the inconvenience the packets would occasionally experience from the trading vessels making an asylum port of what would be only large enough for a packet port, and adverted to the prudence of combining the two, by extending the proposed works. There does not seem to be any inconsistency in this.
8. "There appears no reasons to doubt, in the first place, that about 200 yards in front of it (the port) there is a rock discovered by Captain Beechey himself, while surveying that coast, but not mentioned by him in any part of the Report; secondly, that in the very middle of the proposed harbour, lie the Inner Platters Rocks, the surface dimensions of which are 95 feet by 70 feet, with a depth of only three feet water at low-water spring tides, but of which again no mention is made; and, thirdly, instead of from 16 to 24 feet water, as stated at page 41, there would not be, without allowing for silt, more than from 14 to 16 feet, according to the Admiralty Chart just published.	In answer to this charge of excluding from the Report the mention of these rocks, it is to be observed, as both of them were plainly delineated in the plan transmitted with the Report, and as neither of them formed an obstacle to the construction of the port, there could be no necessity for incumbering the Report with a description of them. As to the assertion that there would not be more than from 14 to 16 feet water, without allowing for silt, the contrary may at once be proved by a reference to the identical chart, provided by "Admiralty Chart," is implied that of Mr. Sheringham, recently published. If Mr. Lawrie's is meant, then we assert that he is no authority.
9. "Sir James Gordon and Captain Beechey have taken the trouble to draw out and publish an incorrect diagram to show that the effect of an accidental error of one point, in the voyage from Porthdynllaen, would be to throw a vessel directly on the Bray Banks; but when it shall have been understood that this hypothesis has been obtained, as your petitioners assert it has, by a misrepresentation of the distances, upon Lawrie's Admiralty Chart, a good reason, they trust, will have been given for receiving with extreme caution any opinion, statement, or recommendation coming from so inaccurate a source. "The effect alleged has been obtained by improperly elongating, or rather projecting the most southerly of the Bray Banks, and measuring it as 14 miles from the south buoy of the Arling Ridges to the Kish Bank, while, in point of fact, it is only 12½ miles.	This is a most unjust accusation; for, if any person will extend a pair of compasses from the Kish light, as marked upon the diagram, to the point at which the line from Porthdynllaen first hits the Bray Bank, he will find that the distance measures exactly 12½ miles, the distance at which the petitioners admit the shoals to extend upon Mr. Lawrie's chart; it is, therefore, palpably untrue to assert that the hypothesis has been obtained by any undue elongation of the bank; but suppose the line made good by an error of a point in the run from Porthdynllaen, had just escaped the extreme limit of the danger, will any man say that the chance of peril is one whit less, when it is manifest that a smaller error than a point in the reckoning would have hit it? Will the petitioners rest the merits of their argument on the probability of the errors in the

Accusation.

Answer.

Replies to Accusations against the Naval Commissioners.

the steerage being so great as to escape the string of dangers comprised between the course shaped and that made good? because, if so, the greater the probability of error the greater the safety of the vessel; an argument which we apprehend the commanders of the packets would not feel very comfortable in acting upon.

To render the subject more clear there is annexed a chart, upon which are drawn first, in black ink, the Kish and Bray Banks as they appear in the diagram; and, in red ink, the same banks as they are delineated in Mr. Lawrie's chart. Now, will any person say that there is any such discrepancy as to justify the uncourteous charge of partiality and misrepresentation as the Commissioners have been taxed with? does not the line lead into danger in nearly the very identical spot? and is not the danger greater upon Lawrie's chart than upon the other, as lying more easterly?

To be sure, the line only grazes his bank, but is the safety greater on that account? What says Lieutenant Frazer of these banks, which may be grazed so safely?

"During my surveying service of 23 years, I have scarcely had so disagreeable a job as the Codlin Bank; it not being safe to approach it only from a little before to a little after high water, on account of the strong tide rushing directly across it, and causing it almost constantly to break."

This is the sort of visitor we are to borrow so closely upon on a dark and stormy night.

But if Mr. Lawrie's bank had laid entirely out of the track we should not have felt ourselves justified in following him. His chart is so full of errors as to destroy all confidence, and the petitioners are wholly unauthorised to call his production an "Admiralty Chart." We shall enumerate some of his errors presently, but first it may be as well to point out that the chart which the Commissioners copied was much nearer the truth than the immaculate chart of Mr. Lawrie, as is evident from the annexed chart, on which the true position of these banks (recently surveyed) is marked in blue ink; the banks, according to the diagram in black ink, and, according to Mr. Lawrie, in red ink.

Vide Plans, No. 5.

Now it is evident that the diagram complained of is somewhat nearer the truth than Mr. Lawrie's chart, not only in the "Codlin, or Bray Bank," as the petitioners term it, but in all the banks.

9.—*continued.*

"It is most remarkable that all the other banks have been laid down in the diagram correctly from Lawrie's Admiralty Chart, except the very bank misrepresented as being injurious to the Porthdynllaen passage."

This assertion, it is evident from the chart, to which the several banks have been transferred with great care, is as palpably untrue as the rest of the charge, for it will be seen that no two banks agree.

And now, lest the petitioners should accuse us of having shrank from our promise of pointing out some of the errors upon Mr. Lawrie's "Admiralty Chart," we will mention a few which occur in the positions of the principal lighthouses and places in the St. George's Channel and Irish Sea.

	Latitude.	Longitude.
	Miles.	Miles.
The Arklow Light, wrong - - -	2¾	2½
Wicklow Light, ditto - - -	1½	2
Copeland Light, ditto - - -	- -	6¼
West Maiden Light, ditto - -	2	9
Mull Kintire Light, ditto - -	1	4½
Rhenuis Light, ditto - - -	5¼	3½
Pladda Light, ditto - - -	- -	5
Ailsa, ditto - - - - -	2	5
Corsill Light, ditto - - -	1¾	1¼

The northern part of Killrannin Sound is twice as wide as it ought to be.

The marks for the Cole Rock are entirely erroneous.

10. "Equally remarkable is an omission of which the author of the diagram has been guilty.

0.43.

The Burford Bank was omitted in the diagram, as not in any way bearing upon the question

Replies to Accusations against the Naval Commissioners.

Accusation.	*Answer.*
guilty. There is in the direct passage from Holyhead a bank called the Burford, but it has been omitted."	question the diagram was intended to explain. It is not at all dangerous to steamers, except in gales of wind, when heavy seas break upon it, but if it were, as it lies nearly between the Kish and Kingstown, it would be as much a danger to the Porthdynllaen route as to the Holyhead, as the packets from both places must round the Kish (*see* the Chart annexed.)
11. "Your petitioners have also to observe that it is equally incorrect to assert that the distance from Porthdynllaen to the Kish is increased from 10 to 14 miles by any causes, and also as is represented in the diagram there are a few hours' ebb at the latter place." * See Chart annexed.	This being a mere assertion, scarcely deserves a reply. The matter is fully explained in p. 42 of the Report, where it is said that Porthdynllaen, further from Kish than *miles.* Holyhead - - - - - - 6 Distance occasionally increased by ebb tide - - - - - - - 5 Further increased by the necessity of keeping wide of the Kish Bank in bad weather - - - - 3 * Total occasional excess - - - 14 The Commissioners have nowhere atated that there are a few hours' ebb at Porthdynllaen; on the contrary, at page 40, line 2, they expressly state that Porthdynllaen is washed by a long ebb; and as ordinary ebbs are of six and a half hours' duration, a long ebb must mean more than that quantity. The arrows upon the diagram show the course of the flood; the first two hours in an easterly direction; the last four hours in the direction of the ebb; three hours each way would have been more correct.
12. "The argument founded upon the Tables 1 A. 1 B. can have no weight in deciding the question, * * why did not Rear-Admiral Gordon and Captain Beechey, having the Government steamers at their command, put their reasoning against Porthdynllaen fairly to the test, by making a set of voyages to and from that place to the Kish, and publishing the result? They did make a series of voyages between Holyhead and the Kish, and why not also make another series between Porthdynllaen and the Kish?"	The series referred to was made in one of the packets, as stated at the head of the Table, in her ordinary trips across the Channel with the mails. The Commissioners had no power to direct one of the packets to make a similar series from Porthdynllaen to the Kish; besides, the Commissioners had to report in the depth of winter, and the series, if made at that time, must have been disadvantageous to Porthdynllaen. It would, moreover, have been hardly safe to anchor at night, at such times, in the exposed anchorage of Porthdynllaen Roads.
13. "The Kish lies in the direct route both from Holyhead and Porthdynllaen, and as far as it is an obstacle at all, it is as much so one way as the other."	It is not so. The route from Holyhead intersects the light-vessel at the extremity of the Kish, and consequently goes clear of the bank, while the route from Porthdynllaen passes directly over the middle of the bank.—(*See* annexed Chart).
14. Two paragraphs on the prevailing winds.	In answer to these, the Commissioners have only to state that they adopted the fairest and most certain method of determining the direction of the winds in the Channel, by consulting the logs of the packets. Registers of wind kept at Holyhead or Kingstown, or at any place under the influence of high land, can give but an imperfect idea of the wind in the Channel.
14. *Continued.* "Now the passage to and from Porthdynllaen is a side, and that from and to Holyhead is a direct one, the advantage therefore accrues to Porthdynllaen."	The petitioners and other advocates for Porthdynllaen have greatly overrated the supposed advantage of a side-wind to steamers. Many steamers will go as fast head to wind as on a wind, and we believe that Her Majesty's packets Merlin and Medusa are of that class; at all events, the average lengths of passages to and from Liverpool and Kingstown show that the prevailing wind does not materially affect the delivery of the mail. The average passages of the Urgent for 1838 and 1839 are as follows; viz. Outward - - 12 H. 30 M. - Inward - - 12 H. 9 M. — - - 12 H. 24 M. - — - - 12 H. 20 M. If, therefore, the average outward passage exceeds by so small an amount the average inward passage upon this long distance of 120 miles, how

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Accusation. | *Answer.*

how very little will be gained by a side passage from Porthdynllaen, which is not more than half the distance. The trifling distance, if any, will literally be more than compensated by the circuitous route the packet from that place has to make round the extremity of the Kish Bank. That this is the fact, may be seen by the passages of the Holyhead packets also, though their small power places them under a disadvantage with the Liverpool boats.

* The average passages of the Otter and Doterel from Holyhead and Kingstown for 1838 are as follows; viz.

	H.	M.		H.	M.
Doterel, out - -	6	44 ½	In - -	6	39 ½
Otter „ - -	6	45 ½	„ - -	6	36 ½
Mean - -	6	45		6	38
	6	38			
Difference - -		7	minutes only.		

15. "Your petitioners humbly claim the attention of your Right Honourable House while they controvert, as they feel they most satisfactorily can, an important declaration, which is quite at variance with established facts. They would repeat that Captain Beechey found a rock not known to exist before at Holyhead, but has not noticed it in his reports. * * * It thus appears that in July 1839 Captain Beechey wrote to the Admiralty, that he had discovered a rock which will endanger large vessels sailing near the Skerries light-house, * * * and that in January 1840 the same officer made a report to the Treasury, for the information of your Honourable House, which describes a proposed harbour as being without danger, which will have this very rock 200 yards opposite its mouth."

It will scarcely be credited that this grave charge which has been so forcibly put before the House of Commons, and signed by five Members of Parliament, is grounded upon entire ignorance of places and facts.

By the letter of Captain Beechey, herewith transmitted, it is clear that the said rock is one-third of a mile outside the Skerries, which are well known to most persons to be close upon six miles distant from Holyhead Harbour, and the site of the proposed packet port; so that the Commissioners are literally arraigned before the House of Commons for having removed the Skerries Islands six miles to the southward and planted them within 200 yards of Holyhead Harbour.

What answer can be given to persons who are so utterly ignorant of the places they are writing upon?

Captain Beechey's Letter:

"Sir,

"I HAVE to inform you of the discovery of a rock which will endanger large vessels passing close to the Skerries at low water; it bears N. 30 W. ⅓ mile from the Skerries Lighthouse.

"I have, &c.
(signed) "*T. W. Beechey.*"

16. In this paragraph the petitioners endeavour to show that Holyhead is an insecure harbour and difficult of access.

The answer to this is, whatever defects Holyhead may possess in its present state, they can have nothing whatever to do with a new harbour.

17. "In the whole of Lawrie's New Pilotage Directory, Holyhead is the only harbour of which it has been found necessary to give a map and plan to guide mariners from the dangers that beset it."

If this be true, it bespeaks very little for the judgment of Mr. Lawrie. Beaumaris, Liverpool, Preston, Wyre, The Solway, Carlingford, Strangford, Larne, Loch Ryan, &c. &c. are all more difficult of access than Holyhead, and far more useful to the trade; but the fact is, Mr. Lawrie is not so guilty of omission as his friends, the petitioners, would have him. In his chart of St. George's Channel he has given plans of several of these places on large scales, and perhaps he obtained possession of the plan of Holyhead after this chart was published, and rather than omit the plan altogether he placed it in his Directory.

The remainder of the petition is made up with the opinions of certain individuals, who are advocates for Porthdynllaen. Some of these opinions are so manifestly unsound, and so contradictory to each other, that it is rather a matter of surprise that the petitioners have ventured to place them in juxta-position.

One states, that the tides in Porthdynllaen are always favourable. Another asserts that if a breakwater were erected on a perpendicular rock, called Carreg-y-Chwislan, it would constitute one of the best and safest harbours in the kingdom; whilst a third states, that if a breakwater

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Replies to Accusations against the Naval Commissioners.

breakwater were erected, "space might be found for 10 vessels, drawing from 15 to 16 feet water, if placed by a judicious harbour-master."

Another declares that "Porthdynllaen, in its present state, is a safe retreat from nearly every point of the compass," whilst a single glance at Mr. Sherringham's chart, will show that the bay is open from N.W. to E.N.E., and it is well known that these winds throw a a heavy sea into the bay.

We shall conclude by opposing to the testimonies of Mr. Rogers, Mr. Smith, Lieutenant Sheringham, and the 86 ship-owners, above alluded to in favour of Portbdynllaen, the following memorials and statements in favour of Holyhead.

In 1823, the merchants, ship-owners, and other inhabitants of Liverpool, presented a memorial to the Treasury, praying that Holyhead might be improved; stating that from the central situation of the said harbour, and from the easy entrance and outlet at all times of tide, it (the proposed port) would be peculiarly suitable for a naval station, and that many important advantages would be given to the trade of the Channel, and agreeing to pay ½ *d.* per ton upon all outward and inward bound vessels, if the harbour were improved.

In April 1836, a petition from the ship-owners and merchants, and also from the Chamber of Commerce, of Greenock, stated, that "Your petitioners were satisfied, from a careful examination of the situation of Porthdynllaen, being placed in a deep bay, and otherwise possessing an unfavourable locality, that it is altogether unsuitable for the purpose of an asylum port, more particularly for vessels inward bound.

"That Holyhead, on the other hand, possesses, in an eminent degree, all the advantages in which the other is so remarkably deficient, and it is humbly hoped that your Honourable House will afford no countenance to any scheme by which the funds, which might, with so much advantage to the country, he applied, should be appropriated to the erection of an asylum harbour in a situation so unsuitable, in every respect, as Portbdyllaen."

In the same year a memorial from the principal merchants and ship-owners of Liverpool was presented to the Lords of the Treasury, which contains precisely the same views respecting Portbdynllaen and Holyhead as that from the Chamber of Commerce at Greenock. The memorial was first sanctioned by the Ship-Owner's Association and the Committee of the Dock Trustees at Liverpool.

Lastly, Lieutenant Sherringham states, in his Official Report to the Admiralty, dated 27 March 1838, "I doubt whether a more desirable packet station on this side of the Channel could be selected than that of Holyhead."

(signed) "*J. A. Gordon*, Rear-Adml.
"*F. W. Beechey*."

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LETTER from *James Perry*, Esq., to Lord Viscount *Ingestre*, M.P. &c. &c.

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Letter from James Perry, Esq. to Lord Viscount Ingestre, M.P. 17 June 1842.

My Lord, Dublin, 17 June 1842.

PERCEIVING that you are the Chairman of a Committee now sitting in the House of Commons upon the subject of an improved Post-office communication between London and Dublin, I beg leave, being one of the honorary secretaries to a public meeting held here upon the subject, to direct your attention to some points which I conceive to be of the first consequence in connexion with the question at issue.

In the first place, I would advert to the necessity of providing sufficient accommodation in the harbour for the increased number of vessels which its selection cannot fail of bringing to it. That increased traffic will flow from adequate improvement, experience leaves no room to doubt, and also that the great majority, if not all of the passenger steamers to and from Ireland will make for the harbour which shall give, as is intended, the shortest possible communication, not only between London and Dublin, but also between most of tha other large towns in England and Ireland. The Irish Railway Commissioners, adverting to this point, at page 78 of their Second Report, say, "the passenger traffic must be very considerable, comprising, as the line will, that for the whole of Ireland, or nearly so, and increased, in a great degree, by the more rapid and cheaper medium of intercourse." I submit that this is the proper time to make due provision for such increase.

2. It is most desirable that those considerations should be duly weighed upon the present occasion, which have been principally dwelt upon by the parties most interested, upon public grounds, in the measure in question, namely, that the capabilities of Holyhead and Portdynllaen, not as packet stations only, but as harbours of refuge also, should be well ascertained by a survey, conducted by perfectly disinterested as well as competent persons; and that in the event of the two places being found equal, or nearly so, in the former respect, the preference should be given to that having the greater capacity for tha latter purpose. The serious losses sustained upon the Welsh coast every year in consequence of the want of a harbour of refuge, have been so fully set forth on various occasions, that I conceive a general reference to them here will he enough to convince you that I do not venture to solicit your attention to this point without having good reason and divers facts to sustain this view of the case.

3. It

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3. It is reported that an inner harbour has been suggested. If that be the case, I beg to submit, that when sailing vessels were in use, this mode of increasing the accommodation at Holyhead was considered and condemned by the late Mr. Rennie, Sir John Stanley, and the other Commissioners* of Holyhead Harbour. I need hardly occupy your time to prove that the accommodation which these authorities regarded as inadequate for sailing vessels in 1816, will not prove sufficient for large-sized steamers at the present day.

The following passage from Appendix (B.), page 178, of the Report from the Committee on Holyhead Harbour, 1816, contains Mr. Rennie's sentiments, to which I beg to add, that the proposed extension of 40 yards has been effected.

"It has been suggested that additional space could be obtained, in the least expensive and most effectual manner, by an extension of the pier to the eastward. Now, on examination, this will be found not only to be very expensive, but by no means effectual; for it unluckily happens, that at the distance of about 700 feet beyond the projected termination of the present pier, there lies a large cluster of sunken rocks, called the Pibeo Rocks, which extend nearly 200 yards beyond low-water mark, and come within about 150 yards of the line which an extended pier would take. It would therefore be absolutely necessary, if space was to be gained by an extension of the pier, that it should be carried at least 250 yards beyond the present intended termination, and this alone would cost at least 100,000*l.*, and when done would not produce all the space that would be wanted, while it would extend the length of the lee-shore within the pier, and, after all, the large vessels would still lie as near the pier head as they could, and obstruct the entrance; so that even were this large sum of money to be expended, the obstructions would only be partially removed.

"It therefore seems to me quite unadvisable to attempt gaining sufficient room in the harbour by any material extension of the pier. I am, however, of opinion that if it were to be extended about 40 yards, it would be beneficial, because by such an extension some additional depth of water would be gained, and it would not occasion any obstruction to the entrance of the rocks of Carreg Modlan."

4. Mr. Rennie's views have been corroborated by Lieutenant Sheringham, who in his official report addressed to the Admiralty, March 14, 1838, says, with reference to this method of improvement: "By extending the present pier, the entrance to the harbour would be thrown too far to the eastward, and too near the rocks on that side of the bay; and it is doubtful whether the deeper water thus obtained could be long preserved, as the very large quantity of silt which fills the inner harbour would probably accompany the extension of the pier head."

5. I would also beg attention to the opinions of Mr. Stephenson and Mr. Cubitt. Mr. Stephenson, at a public meeting held upon this subject in Chester, in January 1839, expressed himself thus: "All that is wanting at Holyhead is an outer pier, which would give 22 feet of water at low-water." This eminent engineer, therefore, is satisfied that no improvement of the inner harbour will answer the wants of the present period.

Mr. Cubitt, addressing the Irish Railway Commissioners, (see their Second Report, Appendix (A.), p. 87,) expresses himself in the following terms: "We now come to the consideration of the harbour, which, in my judgment, is the most important consideration of the two, inasmuch as it involves, according to its plan and construction, not only the question of a mere cover and landing wharf for goods and passengers at the termination of the proposed railway, but also that of a harbour of refuge on a most dangerous part of the coast, where a shelter of that kind is a desideratum.

"Now, the term harbour is so indefinite, that by proportioning the size to the means, a harbour may be constructed for almost any sum of money, according to its depth, extent, &c.; and, in a case like this, where deep water is required at low-water, and a capability of vessels, steam-packets and others, drawing from 15 to 18 feet, lying afloat at all times, and sheltered with any wind, the expenditure must necessarily be considerable."

I have ventured to refer to these different authorities, because I feel that nothing would be more to be regretted than an attempt at the present moment to patch up existing defects, or to diminish them by spending money on half measures. The circumstances of the two countries require enlarged and liberal improvements, such as will endure for a lengthened period, and meet the wants of the different interests concerned. I trust that a comprehensive plan, fully equal to the occasion, will follow from the inquiry which is now going on under your Lordship's auspices, and

I have, &c.

(signed) *James Perry.*

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* The words of the Commissioners are, "He (Mr. Rennie) proposes extending the pier to a distance of 40 yards, which is as far as the safety of the port will admit."

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LETTER from *J. H. Vivian*, Esq. M. P. to Viscount *Ingestre*, M. P.

Letter from J. H. Vivian, Esq. M.P. to Visc. Ingestre, M.P. 25 June 1842.

Dear Lord Ingestre, St. James's-place, 25 June 1842.

As I am unexpectedly called from London by the illness of one of my family, I shall not be able to attend the meeting of the Committee for the consideration of the Report, on Monday next.

I regret this the more, as there are two or three points connected with the subject of our enquiry which, although of great interest to the residents in the southern part of the principality of Wales, may not be considered of sufficient general importance to call for particular notice in the Report of the Committee.

The opinions which I may express on these points are of course only to be considered as those of an individual, but having for some years been most anxious for the improvement of the communication between London and South Wales; being well acquainted with the localities, and having paid considerable attention to the evidence which has been brought before the Committee, (having been present at all the meetings, with one exception, when I was serving on the Waterford Election Committee), I feel that I should be wanting in duty to the interests with which I am connected, were I not to avail myself of some means of stating my views on the subject. This must be my excuse for addressing myself to your Lordship and the Committee.

I would, in the first place, advert to the inefficiency of the means at present employed for the conveyance of the mails across the Severn—a point of the greatest importance to South Wales, and one which I cannot but consider entitled to special notice in the Report of the Committee, independent of any opinion that may be expressed on the general question of the best line of southern communication with Ireland. My own opinion decidedly is, and it is one in which several Members of our Committee fully concur, that the passage of the Severn should be undertaken by Government, not only on the general principle of facilitating as much as possible communications between different parts of the empire, but as being the chosen line of communication for Post-office purposes between South Wales and the metropolis.

I feel reluctant to trouble the Committee with details; but as they are all grounded on the evidence which has been taken before us, and that it is essential to establish our claims to the consideration of Government, I feel anxious to offer a few remarks that have occurred to me (not having the evidence at hand to refer to) on the general question.

The river Severn and the Bristol Channel (for where the one ends and the other begins is immaterial) divide the western portion of the kingdom into two parts. The lowest bridge over the Severn is at Gloucester, which is from 160 to 180 miles from the western coast of Wales, and 220 to 240 from the western extremity of Cornwall. There are several ferries across the Severn below Gloucester, but they are in general inconvenient, and more or less dependent on the tide for water to enable boats to cross.

Below the town of Chepstow, near the mouth of the river Wye, are two ferries termed the Old Passage and the New Passage. The Old Passage is situated above the river Wye, and is also known as the Aust Ferry. The distance from Aust, on the Gloucestershire side, across to Beachley, on the Monmouthshire side, is about 1 ½ mile at high water, and by land from Beachley to Chepstow from 3 ½ to four miles, and from Chepstow to Newport in Monmouthshire 16 miles. From the Aust Ferry House to Bristol the distance is 12 miles. The direct road from Bristol to Monmouth and Hereford, and from thence to Shrewsbury and Chester, as also to Abergavenny, Brecon, and the interior of South Wales, is over the Aust Ferry and through Chepstow. The New Passage is situated two miles below the Aust Passage. The distance from thence to Bristol, on the Gloucestershire side, is about 10 ½ miles, and to Newport, on the Monmouthshire side, about 15 miles; thus making 25 ½ miles by land from Bristol to Newport, instead of 32, as by the Old Passage. This was the line of road which the Pembroke mail used to travel; but as the crossing of the New Passage was found very inconvenient, the approaches to the river at low water being for a considerable distance over rocks and mud, and the passage at all times performed in an open boat, whilst the river is at that point wider than at the Aust Ferry, a few years since the route of the mail was changed, and the line through Chepstow adopted. This change was made in consequence of improvements which had been effected in the approaches to the river at the Old Passage, and the establishment of a steam-boat there, partly by a company of shareholders, which had been formed for the improvement of the ferry, and partly by a private company, to whom the ferry had been assigned. These companies I understand have expended about 20,000 *l.* in extension of the piers and purchase of steam-boats, without having derived any adequate remuneration; but something yet remains to be done to render the passage as practicable as it should be in all states of tide and weather. A condition of the contract between the Post-office authorities and the Ferry Company, for the conveyance of the mails, was that the steam-boat should be used on all possible occasions; but on reference to the Return which has been furnished to the Committee by the General Post-office, it appears that in the year 1841, the mail from Bristol to Carmarthen was conveyed across the Severn in open boats 74 times, and the mail from Carmarthen to Bristol 157 times; and that in the six winter months of the same year, when a steamer, one would naturally suppose, would most be needed, both for the expedition of the mail and the shelter of passengers, the down-mail

was

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was taken across in open boats 44 times, and the up-mail 87 times; together 131 times, or more than one-third of the passages made.

In bringing this statement forward, I have no intention of imputing blame to the agents of the Ferry Company, but my object is to show the inefficiency of the present arrangement; for if proper approaches to the river were made, the steamer might at all times lie alongside the pier or jetty; and it has been stated that there would be no difficulty in embarking or disembarking passengers or carriages, and effecting the passage in a steam-boat at any state of the tide.

Iron steamers, of easy draught of water and considerable power, should be adopted for this river, as the tide runs with great rapidity, and the water at the banks is shallow. There is one steamer of this description now on the station, which answers the purpose tolerably well; and if another boat were provided, the passage might be made from each side at every half hour during the day, and a steamer might be at all times in readiness to convey the mails across without delay. The allowance at present made by the Post-office to the Ferry Company, for the conveyance of four mails in the day, is 150*l.* per year, or about 2*s.* a trip, a sum which must be considered as wholly inadequate, and which affords the company no encouragement to attempt improvements.

In the evidence given before the Committee will be found a Report of Mr. Rendel, the civil engineer, on the practicability of establishing a floating bridge at the Old Passage, on the same principle as the bridge across the Hamoaze, from Devonport to Torpoint. Mr. Rendel expresses himself confidently as to the practicability of the undertaking; but the estimated cost (about 150,000*l.*) is so great, that I cannot entertain a hope of its being done. Mr. Cubitt, in his examination before the Committee, gives the preference to the New Passage over the Old, as avoiding the great detour through Chepstow, in the line of road to go to the westward. He proposes carrying the road on arches over the rocks on the eastern side, and then crossing the river by one of Mr. Rendel's bridges, but I should apprehend that the navigation of the river would be interfered with by such a length of jetty, and that either of these plans is far beyond the reach of any funds that it is likely will be provided.

We must look to accomplish our end by some more humble means, and such a resource appears provided for us in extended jetties and efficient steam-boats at the Aust Ferry. Mr. Barber, a civil engineer of Newport, who surveyed the passage, estimates the cost of extending the piers so as to render them accessible for a steam-boat at all states of the tide, at from 6,000*l.* to 7,000*l.*, and an efficient iron steamer at 2,500*l.* Now, surely this must be considered as a very moderate sum for the end to be obtained; and the outlay would not be wholly unproductive, for there can be no doubt that the passage would be much more frequented if placed in an effective state, with a steam-boat crossing from each side at given periods throughout the day, than as at present, when it is uncertain whether the tides will answer, and whether the boat can approach the shore or not. But, independent of this, and the general considerations to which I have before alluded, it would be so very desirable for Post-office purposes that there should be a ready communication across the Severn at this point, that Government ought to contribute largely towards it. I contend that they ought to take the passage into their own hands, as the great and leading point of communication between the districts on the north and south side of the Bristol Channel and River Severn, and I have understood that every facility for the effecting of such an arrangement would be afforded by the Ferry Company, who are actuated by public motives. But if Government refuse to take the ferry into their own hands, let at least a sum of money be granted, or a loan to the company made, for the purpose of effecting the improvements I have described, receiving, in payment of the interest on the loan, the free conveyance of the mails. There is an imperative necessity that something should be done. We have a perfect right to contend that, on the same principle which has led Government to establish packets between England and Ireland across the Irish Channel, they should take every reasonable means of forming a ready communication between two such important parts of the empire as those on the north and south side of the Bristol Channel, forming a natural basin or arm of the sea, extending into the heart of the country; and the fact that, for the accommodation of the Post-office, the communication between the districts on the north side of that channel and the metropolis is unnecessarily carried across that basin, instead of being conveyed by a somewhat shorter route across the bridge at Gloucester, gives those districts an additional claim on the consideration of Government.

Having thus described what is necessary to be done to render the passage across the Severn at the Aust Ferry effective, I will offer a few remarks on the advantages which would result from the suggested improvements. And in doing this I will confine myself, in the present instance, to the facilities which would be afforded to the Post-office communications, that being the question more immediately the subject of inquiry by the Committee.

On reference to the time-bill of the mail from London to Pembroke, through Bristol, it will be observed that the mail which arrives at Bristol at about one o'clock in the morning by the Great Western Railway, is not forwarded from thence until about six o'clock in the morning, being thus subjected to a detention of five hours at Bristol. The cause assigned for this delay is, that the parties who contract to horse the mail from Bristol to Carmarthen object to start at an earlier hour, on account of the inconvenience to which passengers would be subjected at the Old Passage from having to cross the Severn at night, and occasionally in an open boat, exposed to the inclemency of the weather.

If the improvements proposed were carried into effect, the objection, as far as it applied to the open boat, would be removed, as the steamer might at all times approach the shore, and the passage be rendered comparatively convenient. It would, it is true, be at best an

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an unpleasant passage in the dark, but persons well acquainted with the navigation speak confidently as to its practicability, and instance in support of it that the Liverpool and Bristol mail was formerly conveyed across in the dark, and without accident.

Supposing then that the mail was despatched from Bristol at two o'clock in the morning, it would arrive at the passage at about a quarter after three, at Chepstow at about a quarter after four, at Newport at six o'clock, at Cardiff at about a quarter after seven, and at Swansea at about twelve o'clock in the day, or in 16 hours from the General Post-office in London; and allowing the same time for the return mail to London, and that it was to arrive at Swansea from Carmarthen at two o'clock in the afternoon, 24 hours would be saved in the correspondence from Swansea, and the districts between that place and Cardiff and Merthyr, and the country lying to the eastward of the Severn, including Bristol and London.

The mail now takes 20 hours in arriving at Swansea from London, and 22 hours in returning, being delayed at Bristol five hours on its way to Carmarthen, and seven hours on its way to London; so that in fact Wales has little benefit, as regards the delivery of letters, from the establishment of the Great Western Railway. It is a somewhat curious anomaly that the Cymro coach performs the journey from London to Swansea in from 16 to 17 hours, whilst the mail takes 20 hours to Swansea, and 22 hours in its return.

As regards the Post-office communication with Ireland by way of Milford, it would be accelerated to the extent of four hours by the proposed improvement in the Old Passage, as the mail on its arrival at Carmarthen, where it would meet the mail from London running through Gloucester and Brecon, might at once be forwarded to Hobb's Point.

Under this arrangement the mail would reach Hobb's Point at about seven o'clock in the evening, and if efficient steamers were provided, the passage to Waterford might be accomplished in nine hours; so that, even allowing two hours' margin for irregularities, the mail might reach Waterford quay by six o'clock in the morning; and if the bags were forwarded on arrival, the letters might be delivered at Cork in about nine hours, or at about three o'clock in the afternoon. The time occupied in the conveyance of letters by Hobb's Point to Waterford would thus be—

From London, 34 hours; from Bristol, 28 hours.
From Newport, 24 hours; from Cardiff, 22¾ hours.
From Swansea, 18 hours; and from Carmarthen, 15 hours:

And by the upper road, through Wales,

From Gloucester, about 26 hours; from Monmouth, 23 hours.
From Abergavenny, 21½ hours; and from Brecon, 19 hours; and
From Merthyr Tydfil, by Swansea, about 22 hours;

And to Cork, from these several places, from nine to ten hours additional.

In this estimate no saving of time at the Old Passage is allowed for, and the rate of travelling is that at present adopted.

The route through Milford, thus amended, would possess several advantages over any other which can be adopted for Post-office communication with the South of Ireland. Not only does it offer the advantage of the shortest sea passage, thus avoiding the risk of delays and irregularities to which water conveyance is always liable, but Milford is the terminus of two mails that traverse important lines of country, the one through Gloucester and the other through Bristol, meeting at Carmarthen: and it is to be observed that as these mails must run to Milford, for the conveyance of general correspondence, the only additional expense of the line of communication with Ireland is the maintenance of the packet establishment at Hobb's Point; and it is further to be remarked, that every accommodation is already provided at Hobb's Point for a packet station; good shelter, ample depth of water at the lowest tides, facilities for embarking and disembarking carriages, and proximity to a dockyard.

The inconvenience, as far as regards passengers, is no doubt the length of the land journey through Wales, and the delay at the Aust Ferry.

Far be it from me to recommend the Milford line in preference to any other that may be considered more generally beneficial or convenient; but I confess I entertain serious apprehensions that if the establishment at Hobb's Point is suppressed on account of its expense, it is not likely that the Government will listen to any other plan requiring a very considerable outlay in the construction of new harbours and a more extended packet establishment, and that we shall at last find ourselves deprived of what we have, without gaining anything in return. There is one point as connected with the current charges of the packet establishment at Milford to which I may here allude, and that is the cost of the coal. It is remarkable that whilst Welsh coals are exported to all parts of the globe for steam-packet purposes, for which they are found on our own coast to be admirably adapted, the Government steamers employed in Wales send to Scotland for their supply of coals, paying an infinitely higher price for coals per ton, which are not to be compared in point of strength and power of raising steam to those shipped at Swansea and other ports in Wales. And in reference to the cost of the establishment at Milford, I must remark that it appears to me a somewhat singular argument on the part of the Post-office, that any branch of the establishment which does not pay its way is liable to be suppressed. On this principle a large majority of the post-offices in the kingdom would be closed, and even the communication with Ireland might be altogether cut off. The value of a letter is not to be estimated at the penny charged on it, either to the writer or the person to whom it may be addressed, or in a national point of view, and it is therefore most fallacious to estimate the value of the

southern

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southern communication with Ireland from Milford by the amount received for postage of letters compared with the expenditure, and particularly as that line has been discountenanced at the General Post-office. No doubt, under an amended system and greater encouragement to this route, a more favourable result would be obtained; but it is obvious that a great and serious injury would be inflicted on South Wales and the South of Ireland, if a southern communication between these two countries was to be abandoned, and the letters sent round by Dublin.

I do not mean to insist that no better arrangement than that of the passage from Milford could be devised, if Government were disposed to assist; but I do contend that in any plan which may be adopted the interests of South Wales must form an important feature for consideration. In support of which opinion I will only observe, that it has been shown by official returns from the Customs, that on the average of the last three years, upwards of 4,000 vessels cleared out annually for Ireland from the ports on the Bristol Channel situated on the main road between Newport and Carmarthen. It is fair to presume, therefore, that the delay of a few hours in the transmission of letters, might and would operate very prejudicially to the mercantile, manufacturing, and shipping interests of both South Wales and Ireland.

I would now offer a few remarks on the various other plans which have been suggested for a Post-office communication with Wales and the South of Ireland. And first I would notice a plan suggested some years ago by Mr. Telford, which has lately been revived. It is to convey the mail across the Bristol Channel in a steamer from Uphill or Brean Down to Sully. It appears from the evidence of practical men, examined before the Committee, that the only point on the coast of Wales or Monmouthshire at which a convenient landing place could be formed, accessible for a steamer at all states of tide, is within a small bay called Bendrick Roads, to the eastward of Barry Island, on the Sully estate. Some protection would be required to render this point a safe and convenient place for steam-vessels, and a new road of from eight to nine miles would be required from thence to Cowbridge. In other respects the situation, as far as regards depth of water and good anchorage, and being out of the run of the tide, appears to be well adapted for the purpose. But here again I must revert to the established maxim, that the less water carriage is employed in the conveyance of mails, the better; and I am of opinion, that the inhabitants of the principality would not consider it a beneficial change to have their mail conveyed 11 miles across the open channel, instead of one mile and a half across a comparatively sheltered passage. Still if it became a question whether the southern portion of the principality was to benefit or not in its Post-office communication with the metropolis by the establishment of the Great Western Railway, and that this could only be attained by the adoption of such a passage, I would prefer the steamer to Sully to the chance of crossing in an open boat at the Old Passage.

The communication between Bendrick Roads and the English coast would be by Brean Down, a promontory at the mouth of the river, on which Uphill is situated. It is within two miles of the Bristol and Exeter Railway (with which there is a power to make a branch communication), but as it is open to the prevailing winds of the Channel, protection to a considerable extent would be required to render it a fit and convenient station for steam-vessels.

To obtain this protection by a stone pier would require an enormous outlay. A floating breakwater has been proposed, and certainly if that invention be found to answer, the expense would be comparatively trifling, but it requires to be subjected to a severe test before confidence can be placed in it. It is not only a question of importance whether this plan of breakwater will effectually answer the purpose of breaking the sea, but also whether it can be satisfactorily secured. The consequence of its breaking adrift, with a fleet of vessels under its lee, would be most serious. If breakwaters of this description can be effectively employed, I am not acquainted with any part of the kingdom which would be more benefited than the Bristol Channel, in which, from the extraordinary rise and fall of the tides (from 40 to 45 feet, spring tides), and the great deposit made by the water, it is so difficult to construct a pier or harbour in deep water, except at an extraordinary expense, and even then there is always the chance of its silting up; with the floating breakwater there would be an under current, and there would be no danger from the silting.

It would be very desirable to prove how far this invention may be depended on, which could only be satisfactorily done by the formation of an experimental breakwater. Government, I have been led to understand, would provide the moorings necessary for the trial, and afford every facility. Brean Down might be chosen for the place of trial, or perhaps the Mumbles, where only a comparatively short length of breakwater would be required, and where there is a pool abreast of the Outer Head, capable of containing two or three large vessels, and having from 12 to 14 feet of water at the lowest tides. The cost of each section of breakwater, consisting of 70 feet, is stated to be 600 *l.*

Under ordinary circumstances of wind and weather, and I may add tide, for the steamer would have to cross its run, there is no doubt that a saving of some hours would be effected in the arrival of the mail at Swansea and the towns to the west of Cardiff, by passing the mail across from Brean Down to Sully, as, leaving Brean Down at three in the morning, it would arrive at Bendrick Roads at from four to half-past four o'clock, and Swansea at about nine in the morning, reaching Hobb's Point at about four in the afternoon, and Waterford at three the following morning; say in 31 hours from London. In fact, infinitely preferring, as I do, for the London mail, the route by Aust Ferry, supposing that ferry be placed in an efficient state, to all other, save that through Gloucester, yet if all our efforts to awaken Government to the necessity of these improvements are unavailing, I do not hesitate to say that I should consider the line by Brean Down and Sully preferable to the present

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present state of things; and in reality it would be the only other arrangement by which we could fully benefit by facilities offered by the Great Western Railway. The proprietors of the Aust Ferry did, I believe, offer to convey the mail across at any hour of the night with the present facilities; but I should be unwilling to forward or recommend an arrangement which I cannot but consider as fraught with danger and difficulty, and subject to irregularities.

A still further saving of time might, no doubt, under ordinary circumstances, be effected in the conveyance of correspondence between London and Bristol and the South of Ireland, by the adoption of the plan that has been suggested of running Government steamers direct from Brean Down to Waterford, or some other convenient spot. Estimating the average passage at 18 hours, the mails would reach Waterford in 25 hours from London, supposing all circumstances to be favourable to the sea voyage; but the irregularities would unavoidably be great; and, as a first step, two new harbours must be constructed, one at Brean Down, and one at Bendrick Roads; and it would be necessary to employ steamers of at least 250 horse power on the Irish station, to ensure any degree of regularity. Where, I would ask, are the funds for all this expenditure to come from? If floating breakwaters were found to answer, the necessary outlay would be much lessened.

Supposing that Government would be disposed to assist in the establishment of harbours at Brean Down and Bendrick Roads, and of a superior class of steam-packets, the advantages which the plan would afford to Ireland, and in some respects to South Wales, would undoubtedly be great. Passengers to the South of Ireland would prefer it to all other routes; and from this source an important revenue might be calculated on, whilst considerable saving of time, say of four or five hours, would be effected in the delivery of the mails at Waterford; and with regard to South Wales, the saving of time would also be considerable. As regards the delivery of the London letters by a packet communication from Brean Down to Sully, as I have before observed, and by the establishment of a post-office at Brean Down, the Irish correspondence might be passed to and from Wales with the London letters, without being subjected to the delay that must necessarily take place if the letters were sent round by Holyhead. The mail from London might reach Brean Down, by the Great Western Railway, at two o'clock; and the steamers, as well for Ireland as Sully, might be dispatched at three o'clock, reaching the latter place at about half-past four. There is now no practicable road from Sully to Cowbridge; but supposing one to be formed, the mail might arrive at Cowbridge at about half-past six, and Swansea at about nine, o'clock in the morning, or in 13 hours from the General Post-office. The return mail might reach Swansea at about six o'clock in the evening; Sully at half-past 10 at night; Brean Down at 12, and be forwarded on to London by the usual mail trains.

This plan, which at first sight appears to exclude Newport and Cardiff, would not, by calculation, occasion any delay of consequence in the delivery of letters in those towns. The down-mail, arriving at Sully at half-past four, might reach Cardiff, eight miles distant, at about half-past five, and Newport at about seven. At present the down-mail reaches Newport at about 10 o'clock, and, were the improvements which I propose in the Aust Ferry carried into effect, would arrive there at about six o'clock in the morning; so that, as regards Newport, either plan would answer; whilst Cardiff, and of course Merthyr, and the district connected with the Taff Vale Railway, would be benefited by the adoption of the route by Sully, as regards the delivery of letters, under favourable circumstances on the passage. And as regards public convenience, it would unquestionably be greatly promoted by the establishment of landing-places at different points in the Channel accessible for steamers at all states of the tide. The extent of the outlay appears to me the difficulty to be overcome.

Another locality which has been named as suitable for a packet station in the Bristol Channel, is Portishead. It has this advantage over Brean Down, that it is more sheltered, and more out of the run of the tide; but, on the other hand, it is 20 miles higher up the Channel, and the intervening navigation would be difficult and dangerous in dark and stormy nights.

It is also inconveniently situated for the railway, Bristol, nine miles distant, being the nearest point. But I would ask, is it not desirable to ascertain what Government is disposed to do in reference to the large outlays which would be necessary at either of these stations? Before the Milford station is abandoned, common prudence dictates that we should have some other secured to replace it.

It has been suggested, that if the steamers started from Portishead for Ireland, they might call at Sully, or if from Brean Down, at the Mumbles or at Milford, for the Welsh letters. How this would answer in practice, I will not take upon myself to say; but I am inclined to suspect that if this plan was adopted to reconcile the inhabitants of the principality to the removal of the station from Milford, it would soon be discovered that to call at Milford would occasion a considerable detour, and consequent delay; that landing at the Mumbles, except a breakwater be made there, would be difficult and inconvenient, and that Sully is situated on the wrong side of the Channel, and would add a dangerous navigation over shallows and sand-banks to the difficulties of the voyage, already quite sufficient. I must, however, say, in reference to the Mumbles, that if a floating breakwater (always supposing that invention to answer) were placed there, with a landing-place inside it, this spot would be a convenient place for steamers in the Channel to call at, and would occasion very little deviation from the course from Brean Down to Waterford. The passage from Brean Down to the Mumbles would probably require from three and a half to four hours. On this subject, however, I may remark, that it appears to me no advantage could arise from calling at Sully, the Mumbles, or Milford, unless a separate mail was maintained through the country for the

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the conveyance of Irish correspondence; as, if the packet had to wait at either of these places for the arrival of the London mail, no time would be gained, whilst a detention would take place, supposing the mail had to wait the arrival of the steamer, a circumstance which would no doubt occasionally happen in the winter season.

Before I conclude my already sufficiently lengthy letter, I would notice an objection which was made on the part of the Post-office authorities, in the examination before the Committee, to an earlier despatch of the Welsh mail from Bristol, on the ground that the northern letters would be left behind, as they could not reach Gloucester in time to be forwarded to meet the mail from Bristol at Chepstow, as at present. I confess it does not appear to me that this objection should form any obstacle to the change, as the communication with the metropolis should be the first object, and a gain of four hours in the time of the arrival of the London mail, and six hours in its departure, should counterbalance all other considerations; and there is no doubt that the letters from Liverpool and Manchester, which are of the chief importance in a commercial point of view, might be conveyed to Gloucester by an earlier train than that at present employed, so as to reach Chepstow in full time for the down-mail.

I have hitherto refrained from entering, in this letter, on the consideration of the route through Gloucester, from a desire not to embarrass the subject, as it is pretty well understood that the Post-office authorities strongly object to the adoption of that route. I may, however, observe, as bearing on the improvement of Aust Ferry, that it is an undoubted hardship on the inhabitants of the principality that they are compelled in their mail communication with London to traverse a ferry of a mile and a half in extent, whilst there exists a mail line of road shorter in distance, and not encumbered with any such inconvenience. The Post-office authorities say that they once advertised for tenders for horsing the mail by this route, and that none were received; but I believe this to have been accidental, and that contractors would be forthcoming.

By the route of Gloucester the London mail would arrive at Chepstow about an hour earlier than it does at present by way of Bristol, and on the completion of the railway from Cirencester to Gloucester two hours more would be gained; and in the event of a bridge being formed over the Severn, at Newnham, for which a plan was made by Mr. Rendel, by desire of the Woods and Forests, there would be a still further saving of time. The route by Gloucester is the shortest, and the most natural route from the Metropolis to South Wales, but if the Post-office continue to send the London mail through Bristol and across the Severn, they should at least take every means of making the passage of that river safe, speedy, and commodious.

There is at present no probability of a railway being carried into Wales; but if such a measure should again be projected, the proposed bridge at Newnham would, I should apprehend, be the best line.

I have to apologize for the length of this communication. In excuse, I have only to urge the great interest I have ever taken in the improvement of the communication between South Wales and the other parts of the kingdom, and the apprehension which I at present entertain, that some steps may without due consideration be taken, which may deprive us of the ready communication with Ireland which we at present possess. I am well aware of the advantage of railway communication, and of the desire which exists to obtain a line of railway to Holyhead; but do not allow the interests of other districts to be sacrificed to this object. If a railway is desirable, let it be made, but not at our expense. The prosperity of a country is increased by facilitating communications, and not by curtailing them.

That a heavy blow will be inflicted on the southern and western districts of England, on South Wales, and the South of Ireland, if a southern communication between the countries is not maintained, is beyond a doubt; and I earnestly hope that a strong opinion to this effect will be expressed by the Committee.

I remain, &c.
(signed) *J. H. Vivian.*

Appendix, No. 22.

LETTER from *Charles Bianconi*, Esq. to Lord Viscount *Ingestre*, M. P. &c. &c.

Appendix, No. 22.

Letter from C. Bianconi, Esq. to Lord Viscount Ingestre, M.P. 21 June 1841.

My Lord, Morley's Hotel, 21 June 1841.

FROM my knowledge of the island communication in the South of Ireland, and of the manner in which traffic in passengers and goods have increased with the increase of facilities, and from my being a contractor for carrying the mails for the Post-office, over a distance of 1,400 miles per diem, I thought it my duty to yield to the requests of parties on the other side of the water, as well as on this, to tender any evidence which they were pleased to think I could give, which might be of service, or in any way tend to the improvement of the system, which from some cause or another has been allowed to fall into disrepute.

For this purpose I hastened to London some weeks ago, but found that the Committee had adjourned for a week.

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Letter from C. Bianconi, Esq. to Lord Viscount Ingestre, M.P. 21 June 1841.

Having since been requested to join the deputation in London, I have, at their request, again presented myself, and now hasten to put in execution the wishes of the Committee, as but now expressed to me by your Lordship.

In a commercial point of view, I cannot conceive anything likely to be more beneficial to the South of Ireland than a rapid and regular mail communication between London and Waterford, inasmuch as all passengers could be carried at half the expense and in about half the time which is now consumed by the way of Dublin.

There is a mail every evening between Waterford, Cork, and Limerick, at 8 o'clock, which enables English letters to be delivered at 8 A. M. the next morning at the latter places, as well as Malo and all intermediate places.

Should the packet be ever beyond her time, letters could be forwarded by the way of Clonmel, at 5 o'clock next morning, and thus the letters from England would be delivered at Limerick and Cork at about half-past three.

From my own experience, I have invariably found that as soon as I had opened communications with the interior, the consumption of manufactured goods had greatly increased; the competition of parties availing themselves of the facilities of travelling is so great, that instead of buying second-hand, they in numerous instances transact their own business. In the more remote parts of Ireland, for instance, before my cars were established, purchasers were compelled to give 8 *d.* and 9 *d.* per yard for calico which is now sold for 4 *d.* and 5 *d.* per yard, the consequence being, that part of the population who could only afford one shirt, have now two for the same price; and in the same ratio all other commodities have come into use.

The freedom of communication has greatly added to the elevation of the lower classes of society; for in proportion as they found that travelling, with a saving of time, was cheaper to them than walking with the loss of it, they began to appreciate its value, and hence have, to an almost incalculable extent, become travellers by my cars, where mixing with the better orders of society their own moral elevation has been of a decided character; I contend, hence, that the more frequent and efficient the channels of communication, the greater will be the benefits conferred on general society, and the better will be the understanding between the two countries.

Waterford I conceive to be admirably situated for this object; it is in the immediate vicinity of eight of the most important counties in Ireland, not being more than 40 miles from either of them, and being within 25 miles of four of the assize towns, besides having an unobjectionable harbour, available at all times of tide, and in any weather, and being also the nearest port, with sufficient water, to the Great Western Railway, the full benefits of which might be extended to the South of Ireland.

I beg permission to hand in a printed paper, showing the benefit likely to be derived by the agricultural interests by a quicker communication, in the principle of which I entirely agree. It was put into my hand by a merchant, who, like myself, came to London to tender his evidence, and who, like myself, also found the Committee had adjourned.

I have, &c.
(signed) *Charles Bianconi.*

South of Ireland Post and Passenger Communication.

Present Route from London to Cork, viâ Liverpool and Dublin.

The mail which leaves London Monday evening at nine o'clock arrives in Liverpool, and on board the packet, about six o'clock Tuesday morning. Arrives in Dublin about six o'clock Tuesday evening. Leaves Dublin at nine o'clock, and arrives in Cork, Wednesday, about thirty minutes past three o'clock in the afternoon, too late to be delivered to the merchants to be of any use for the corn market of that day; and in winter, when the corn market is of most importance, the mail does not arrive till between four and five o'clock.

Answers to letters sent from London on Monday night are not received till Saturday morning.

If Government send despatches on Monday night to a general commanding at Waterford, no answer can be received in London, by way of Liverpool and Dublin, till Saturday morning, two days longer than by way of Bristol.

Proposed Route from London to Cork, viâ Bristol and Waterford.

The mail which would leave London Monday evening at nine o'clock would arrive in Bristol, and on board the packet in Kingroad or Portishead by three o'clock Tuesday morning; would call at Sully with the London mail in going down Channel, and after calling at Sully would arrive in Waterford before eleven o'clock Tuesday night; would leave Waterford, per mail-coach, at half-past eleven o'clock, at night, and would arrive in Cork about half-past nine o'clock Wednesday morning, in good time for the corn market of that day.

Return.—The mail to leave Cork Wednesday afternoon at four o'clock, by which hour the corn market is over, would arrive in Waterford about two o'clock Thursday morning: the packet to leave Waterford at three o'clock might call at Sully, or some other point, in going up Channel, to leave the letters and passengers from Ireland, and to receive those for Bristol and London; in due course it would arrive in Bristol before eleven o'clock the same night, and in London by five o'clock Friday morning.

Thus

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Thus having ample time to convey the state of the London corn market of Monday to the merchants in Cork before their corn market of Wednesday morning, and as the mail would not leave Cork on Wednesday till (four P.M.) after their corn market of that day, the London merchants would receive their letters of advice on Friday morning before the corn market of that day, instead of Saturday, as per the present route, *viâ* Liverpool and Dublin.

By that arrangement, not only London and Bristol would gain a day in the correspondence, in comparison with the route *viâ* Liverpool and Dublin, but so also would Gloucester, Cheltenham, Tewkeshury, Worcester, and Birmingham*, with Waterford, and all the intermediate towns to Cork; and the like benefit may most easily he extended to Southampton, by sending a mail every evening at six o'clock to join the Great Western Road at Reading, the distance from Basingstoke to Reading heing only 17 miles; Exeter, Plymouth, Falmouth, and the whole of the West of England would also partake of the advantage.

And as the packet would call at Sully in going down Channel, the London letters would be at Cardiff by seven o'clock in the morning; at Merthyr by nine o'clock; and at Swansea by half-past eleven o'clock.

And in returning, would leave Swansea at two o'clock; or Merthyr at four o'clock; or Cardiff at six o'clock, for Sully; so that the whole manufacturing district of South Wales would be equally benefited by gaining a day in the correspondence with the South of Ireland, and Swansea and places adjacent would gain a day in the correspondence with London.

Government might, in cases of emergency, thus send despatches on Monday night, and obtain answers from a general commanding at Waterford on Thursday morning, having four hours to reply; whereas by way of Liverpool and Dublin, the answers would not be received till Saturday morning.

(signed) *Edward Harley.*

Appendix, No. 23.

Appendix, No. 23.

Selections from Capt. Beechey's Report on Packet Stations, 1 Oct. 1837.

SELECTIONS from the REPORT of Captain *Beechey*, dated 1st October 1837, on the Packet Station and Communication between the South of *Scotland* and the North of *Ireland*.

Her Majesty's Surveying Steam-vessel African, at Sea,
1 October 1837.

Sir,

IN compliance with their Lordships' direction, I have carefully examined the harbours of Portpatrick, Donaghadee, Cairn Ryan, Larne, Stranraer, Belfast, Girvan, and Greenock, with regard to their eligibility for mail-packet stations between Scotland and the North of Ireland.

I have obtained all the information I could at each place from persons whom I found competent to throw any light upon the subject of inquiry; and I have attended meetings of the inhabitants and of the Chambers of Commerce of Belfast and Greenock, and have received from them various memorials and other documents which they were so good as to draw up for my guidance; to all of which I have given my best consideration.

In advance, Sir, you will find my reports in detail upon the various places I have visited, with copies of the documents above alluded to; together with sketches of such of the ports as were necessary, and remarks which appeared to me calculated to put their Lordships in full possession of every particular.

The general principle impressed upon me by their Lordships, "that the shorter the sea passage, the more precise will be the regularity and certainty of the arrival and despatch of the mails," led me to inquire, first, into the merits of Portpatrick and Donaghadee; these two places comprising the shortest distance between Scotland and Ireland, with the exception of the coasts of Cantire and northern part of Antrim, which are wholly out of the question.

Portpatrick.

After a careful examination of the capabilities of Portpatrick, and an inquiry into the opinions of the officers stationed there, as well as of those who have for several years been in command of the packets, I have no hesitation in saying that that port is not nor ever can be made a safe harbour, either to run for or depart from in tempestuous weather from the westward, without incurring an enormous expense.

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* There can be no doubt, that as soon as the railway between Birmingham and Bristol be completed, a mail would be despatched from Birmingham every evening at nine o'clock, with the Bristol and West of England letters; and at the same time a bag for the South of Ireland which at Bristol would meet the London bag, and go from thence by the same steam-packet.

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Selections from Capt. Beechey's Report on Packet Stations, 1 Oct. 1837.

The disadvantages of Portpatrick are stated in detail in advance (see Report upon that place, p. 323); I shall merely mention here, Sir, that it is too exposed, too shallow, and too contracted, even for the boats at present employed there. They cannot quit it or enter it with a westerly gale, without the imminent risk of life; they cannot go out at low water, and in entering with a following gale are compelled to run aground; and the channel is so narrow that check ropes are necessary, to prevent their running the bowsprits against the cliff.

These defects I consider quite sufficient to condemn the port; but they will be still more felt should their Lordships think proper to put upon this station boats of a sufficient length and power to command the passage. There can be no doubt, Sir, that many of the failures of the delivery of the mail on this station have been owing to the want of power of the packets; I do not mean of the engines alone, but of the boats themselves; they require to be of greater length, and altogether more powerful vessels, to contend with the heavy breaking seas which occur in the channel they have to navigate.

Donaghadee.

To Donaghadee there is no insuperable objection; although small, affording bad shelter with easterly winds, and hazardous to enter with easterly gales, yet it must be recollected that its protection is required for an hour only each day; it has to be attempted during daylight always, and it is situated on the weather shore as regards the prevailing wind. Besides, Sir, a moderate outlay would materially improve this port. The objection to the present route of the packets, therefore, Sir, rests with Portpatrick; and I confess it appears to me to be irremediable.

Larne and Loch Ryan.

The next two ports which offer, in point of distance and convenience of situation, are Larne and Loch Ryan.

These two ports appear to be so admirably adapted to the purpose, and fall so immediately under the conditions, considered conjointly, that there can be no doubt of their deserving the preference over all other ports in the North Channel. Safe of approach, easy of access, perfectly secure, and not too far apart, they leave nothing to be desired but accommodation for landing and embarking the mails, passengers, carriages, &c., which must be given at any port that is chosen in the North Channel, with the exception of that of Belfast or Greenock; whilst their situation, as regards post deliveries, is far more advantageous than that of Portpatrick and Donaghadee.

Cairn Ryan.

Loch Ryan has three places within its harbour which have been pointed out as fit stations for the packets, viz. Finnert Bay, Stranraer, and Cairn Ryan; but I should recommend the preference being given to the latter. It possesses an advantage over Stranraer, on account of its being nearer both to Glasgow and Larne by three-quarters of an hour each, which would make an hour and a half difference of time in the packet clearing the Loch; and over Finnert Bay, in consequence of that place being too exposed, and so situated as to require an enormous expense to render it a secure anchorage: Cairn Ryan, besides, with the aid of a low lighthouse upon the point, may be approached in the darkest night without hesitation; whereas Stranraer lies beyond an extensive spit, called the Scaur, which would require a floating light in addition to the light upon Cairn Point.

In the memorial of the inhabitants of Stranraer, which will be found at No. 20, several objections have been urged against Cairn Ryan as a station (*see* Memorial, No. 20); of which the rough anchorage, the violent tides, the boggy nature of the ground, in the event of a pier being required, and the limited space for the erection of buildings, are the most important.

I have considered all those objections (page 326), and do not think they obtain to any important extent. As regards the rough anchorage, the packets at either place, Cairn Ryan or Stranraer, will equally require the protection and convenience of a pier. The violent tides must be by comparison only, as they do not run more than two and a half knots per hour at Cairn Ryan, and are diverted from the position in which the pier would be placed, by the points of Cairn and Claddy. The ground off Claddy Point has been found to be clay, with a superstratum of sand and shingle, and there is sufficient space for the erection of all the stores and buildings that will be required upon Claddy Point.

The memorial goes on to state, that the pier already erected at Stranraer would be a great saving in the adaptation of that place to a station, whereas everything has to be done at Cairn Ryan.

This is in some respect true; but as the pier at Stranraer is dry at low-water spring tides, the advantage to be derived from its present length can be compared only to the distance at which the low-water mark at Cairn Ryan is from the high-water line; or about 220 feet of pier to be erected upon a foundation dry at low water.

In a letter of Mr. M‘Neel, the collector of the customs at Stranraer, in answer to some questions which I put to him, he states that if Stranraer were chosen, an increase in the number of passengers might be anticipated; and that an advantage would be derived from an improvement in the trade of the place. But it appears to me, Sir, that Stranraer offers no inducement for passengers to travel that route, except for the purpose of meeting the packet, and they would as readily go to Cairn Ryan if the station happened to be there; and that, unless Belfast were chosen as the station on the Irish coast, the packets would derive but little benefit from any increase of trade, as the articles exported from thence would not be shipped in the steamers, but continue to be carried by coasters, as at Portpatrick.

If Belfast should be chosen as the corresponding port with Loch Ryan, the immediate communication with that great commercial town would perhaps be of great benefit to the packets, by occasioning an increase of passengers, many of whom at present, objecting to the land conveyance to Donaghadee, adopt the passage by the Clyde steamers.

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Selections from Capt. Beechey's Report on Packet Stations.
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That passage is, however, a long and boisterous one in the winter, and they would no doubt be glad of the opportunity of going direct from Belfast to Loch Ryan. But this would not be affected by the situation of the station within the Loch, as it could not matter whether they were landed at Stranraer or at Cairn Ryan, provided they could find equally good accommodation, which would soon grow up at Cairn Ryan, as the demand for it became apparent.

Upon the whole, Sir, I do not perceive a single point in which the public or the mail conveyance could be benefited by fixing the station at Stranraer in preference to Cairn Ryan; but, on the contrary, there would be a disadvantage in point of time in the packet quitting the Loch, which in thick weather would be increased by the caution necessary to be observed in rounding the Scaur shoal.

Larne.

Larne is the next port to which I wish to call their Lordships' attention.

In point of security and facility of access, this port is without a competitor on the north-east coast of Ireland; and without entering the Loch of Belfast, is the nearest port to that great commercial town and to the port of Loch Ryan. It has also the advantage of being particularly well situated for the mail communication with the North of Ireland.

The only disadvantage this port possesses is that of having a dangerous rock off its entrance, situated between it and the Maidens. This danger may, however, be removed by blasting the rock to a sufficient depth for the vessels of the steamers' draught of water to pass over it. Besides, Sir, with the Maiden Lights on the north, and Larne Lighthouse on the south, it could hardly occur that a vessel would be upon it before she had warning of her situation from one or the other.

A very small sum will render Larne complete as a station; there is already a jetty there, which will be at the service of the packets; and if this be used, a sorting-house for letters will be all that is requisite. But, Sir, I should recommend a wharf being built in the vicinity; perhaps in the place I have assigned it in my plan, and kept exclusively for the use of the packets: the jetty being very slight will require constant repair, and it seems to me to be too near to the entrance to afford the requisite accommodation during north-easterly gales. It may happen, moreover, that the steamers trading to the port may be discharging or taking in their cargoes at the moment the packet would require its use; and as no more than one vessel can lie alongside it at low water, that circumstance would occasion an inconvenient delay.

A wharf, in the situation before mentioned, will require to be only 176 yards in length, to command 17 feet water at all times, and there is an abundance of lime and stone fit for its construction in the immediate vicinity.

Annexed is a copy of the petition of the inhabitants of Larne to the House of Commons; in which, Sir, I entirely concur, with the exception in the gain in point of time in the mail deliveries, stated in section 6, and the depth of water alongside the jetty, which is 12 instead of 14 feet.

As regards the passage between Larne and Cairn Ryan, it may be performed nearly as expeditiously as that between Portpatrick and Donaghadee, by the employment of competent vessels, which the contracted limits of Portpatrick will not admit of: besides, Sir, the mail from Glasgow arriving earlier at Cairn Ryan, the packet will be able to start two or three hours sooner than she now does, and there will be no delay from the state of the tide.

In fact, Sir, I cannot point out two ports better situated, and more unexceptionable, than Cairn Ryan and Larne.

Loch of Belfast.

The Loch of Belfast is next in order in point of distance.

Throughout all this Loch, Sir, there is not a place, accessible at all times of tide, at which vessels can ride in perfect security with all winds; and to construct a port for the occasion would require a very considerable outlay, as below Garmoyl the sea rolls heavily in with easterly gales. It is, however, in contemplation to cut a channel from Garmoyl up to the quays of Belfast; and I am informed by the corporation of that town that the work will be commenced in the ensuing spring, and that in January 1839 it will be so far completed as to allow vessels drawing nine feet water to come close to the town at all times of tide.

If this be accomplished, in 1830 the port of Belfast will afford all the accommodation that can be required by the packets. But by adopting this port the sea passage will be increased 20 miles; and unless the mail from Glasgow can be conveyed to Cairn Ryan three hours earlier than at present, all the north and west parts of Ireland will suffer in their correspondence by the arrangement, the former 24 hours, and the latter 12 hours; as will appear in speaking of the mail conveyance with regard to Larne and Cairn Ryan.

Should the railroad, now in course of formation, between Glasgow and Ayr so far expedite the conveyance of the mail to Cairn Ryan as to allow of its reaching Belfast by seven in the morning, that town, by having a return of correspondence the same day, would benefit 24 hours in its communication with Glasgow; and the letters being in time for the Dublin mail, there would be a gain of 12 hours to all the South of Ireland, while it would be the same to Derry, Ballymena, Coleraine, and all the North of Ireland, as the route at present proposed through Larne.

The convenience to passengers also between the two countries would be great, as I have stated in speaking on this subject with reference to Cairn Ryan; and, if they would go by the packets, the benefit arising therefrom would no doubt be considerable.

I cannot, Sir, nevertheless recommend this route in preference to Larne.

The increase of sea passage is a disadvantage, and the delay that must take place in navigating the Loch in thick weather, from the shoals on either side, and in hitting the narrow

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narrow entrance of the proposed channel to Belfast, is a still greater objection. Besides, Sir, with deference I speak, in order to render the stations permanent it seems necessary to adhere rigidly to the principle urged by their Lordships, as the numerous railroads in progress and in contemplation will no doubt ultimately convey the mails with the greatest possible rapidity to the two nearest possible points of communication.

The Chamber of Commerce and corporation of Belfast are very anxious that that town should be made the packet station on the Irish side, "if practicable," and I have given the subject much consideration; but, Sir, I do not think, if their desire were granted, the communication with Scotland would be attended with that regularity which they think of such importance in commercial transactions. Thick weather, south-west gales, and a strong ebb tide down the Loch, would so retard the arrival of the mail that it would occasionally derange all the correspondence.

A railroad from Larne to Belfast, which has already been in contemplation, would do more towards accomplishing their wishes than fixing the packet station at their town; as they would then, no doubt, with the help of the railroad from Glasgow to Ayr, gain a whole day in their correspondence with Scotland.

Arrangement proposed through Cairn Ryan and Larne.

It now remains for me to show how the arrangement I have proposed through Cairn Ryan and Larne will fall in with the present Post-office deliveries.

The English and South of Scotland mails now reach Stranraer at 8 p.m., and would arrive at Cairn Ryan at 8.45 p.m. The Glasgow mail, bringing all the correspondence from the North and East of Scotland, gets to Cairn Ryan at 3 a.m.

The packet would thus be enabled to start at 3.30 a.m., and under ordinary circumstances would arrive at Larne jetty at 8 a.m.; the letters would then have to be sorted; the Belfast, Dublin, and all the South of Ireland letters for one mail, and Ballymena, Coleraine, and all the North of Ireland, for the other.

At 8.45 a.m. the mails would start; that for Belfast having only 23 miles to travel would arrive at 11 a.m., the time the mail usually reaches that place from Donaghadee.

The other mail will have to travel a cross road to Ballymena, where, the distance being only 15 Irish miles, it will arrive at 10.45 a.m., and meet the Derry mail from Belfast, which proceeds from Ballymena towards Derry at 11.20 a.m.

By this arrangement, Sir, the letters for all the northern parts of Ireland will reach their destination as expeditiously as if they had been dispatched from Belfast at 7 a.m.; an advantage which cannot be derived by any other route, unless indeed the conveyance between Glasgow and Cairn Ryan could be reduced to seven hours instead of ten, in which case steam conveyance might command an early delivery at Belfast, which would be the same thing.

Should the packet arrive at Larne too late for the branch conveyance to overtake the Derry mail at Ballymena, the letters for Derry and Sligo will have to be dispatched to Belfast, in order that they may be sent by the evening mail from that place through Armagh and Monaghan, which, by an arrangement already in operation, overtakes the Dublin and Derry mail at Enniskillen.

The letters would thus get to Derry only 12 hours later than if they had been in time for the mail at Ballymena; and at the same time as they do at present by the route through Donaghadee.

The other letters from Larne will still be sent on to Ballymena as before proposed, that that town, which is of nearly as much importance as Coleraine, may receive its correspondence, and that the Coleraine letters may be in readiness for the next day's mail; or they may be forwarded by express, as the distance is but 25 miles.

I should acquaint you, Sir, that there is already a road from Larne to Ballymena, and that I am informed, if the Government were to establish the packet station at Larne, the county would undertake to improve the road.

There is another route by which the mail might be conveyed to Coleraine, viz., by the road recently made through Glenarm; but this would require a part of the road from Ballycastle to Bushmill to be improved, and it would moreover require a mail-coach, expressly for the purpose, to travel the whole of the distance, whereas the other route needs one for 15 miles only; and, besides incurring this additional expense, the letters would arrive at Coleraine too late for the Derry mail, and would leave out Ballymena entirely. It is not, therefore, to be recommended.

Passage between Cairn Ryan and Larne.

As regards the passage between Cairn Ryan and Larne, and the time in which it may be expected to be performed at all seasons, the few following remarks will perhaps be useful.

The distance from Cairn Ryan to Corsewall may be stated at seven miles, and from Corsewall to Larne at 27 miles; making the whole distance from Cairn Bay to Larne Jetty 34 geographical miles.

If steam-boats, of the speed and power of those at present running between Liverpool and Kingstown, Ireland, be put upon the northern station, the above-mentioned distance may be performed within a period which will render the due delivery of the mail almost certain throughout the year.

For it appears from a statement of the passages made by the packets between Liverpool and Kingstown (see No. 36), that the average speed of the vessels during the six summer months was 9.4 miles per hour, and during the six winter months eight miles per hour; that there were but 35 days in the year upon which the distance made good was not seven miles per hour, and 16 days in the year when it was not six miles per hour; so that at the worst the passage may be made in five and a half hours, which will bring the mail to Larne at nine o'clock: and if, on those occasions, extraordinary dispatch be used, the letter

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ters may still be conveyed to Ballymena in time for the Derry mail, and easily to Belfast in time for the commercial business of the day.

It is to be observed, Sir, that the tides between Cairn Ryan and Larne are never opposed to the course of a vessel making that passage after she clears the Loch, but take her upon the broadside; whereas, in the passage from Liverpool to Kingstown, until the meridian of Point Linas be reached, they will occasionally retard a vessel from two to three knots per hour; so that the average speed of the steamers from Cairn Ryan to Larne will be greater than that which is given above: besides, the seas in the northern passage, when opposed to the course of the packet, are less felt every hour, as she soon gets within the shelter of another shore, whereas the Liverpool boats have to contend with a long heavy fetch for at least 90 miles of their passage.

The most unfavourable circumstances for the performance of the passage between Cairn Ryan and Larne would be when the packet is required to start with a young flood and a north-west gale; but even then, supposing it to blow so hard that she could not reach Larne without considerable delay, she would fetch into the Loch of Belfast, and deliver the mail at Belfast in time for the business of the day: and the mails for the North of Ireland would even then only suffer the delay which they now experience under the present arrangement through Portpatrick and Donaghadee, supposing that passage to be performed under the most favourable weather.

So that under all circumstances I am of opinion, Sir, that the route I have recommended will be liable to as few failures as any other of the same distance in the United Kingdom, provided there be put upon this station vessels of sufficient length and power to contend with the breaking seas which occur in the Northern Channel.

With regard to the opinion of Mr. Napier, given in No. 26 (page 165), and communicated to Colonel Blair by Mr. Logan, "that vessels of 150 tons, and 75 horse power, would be adapted to the passage," I beg to observe, Sir, that every day's experience proves that length, with power proportioned to the tonnage, is absolutely necessary to command a certain distance within a given time; and that 150 tons is not sufficient burthen to afford the requisite length of keel for this purpose; but that the packets for the northern station ought not to be under 250 or 300 tons, including the boilers and engines.

In the correspondence annexed, Sir, you will find, in Nos. 24, 25, and 20, the opinions of three experienced persons on this passage, all of whom concur in the necessity of having vessels of larger tonnage than either those above-mentioned or at present employed at Portpatrick.

I shall conclude this letter, Sir, by repeating my conviction of the hopelessness of ever rendering Portpatrick a safe or eligible port for the packets; and that, on the other hand, the more the subject is considered with regard to the route which I have proposed through Cairn Ryan and Larne, the more it will be found to merit attention, not only with reference to the present mail deliveries, but to what may be reasonably expected from the rapid improvement of inland communication between all parts of the United Kingdom.

In closing this Report, Sir, which embraces subjects so foreign to my professional duties, I beg their Lordships' indulgence, should I have failed to afford them all the information they may have anticipated upon so important and extensive an inquiry.

I have, &c.
(signed) *F. W. Beechey*,
Captain.

Charles Wood, Esq. Secretary, &c. &c. &c.
Admiralty.

Observations upon the Harbour of Portpatrick.

Description of the harbour.

PORTPATRICK consists of an outer and inner harbour, the dimensions of which (both included) are about 710 feet by 495 feet. They are formed between two piers, of which about 140 feet of the northern one and its jetty are incomplete. A rock called M'Cook's Craig nearly separates these two harbours, leaving a narrow circuitous passage of 105 feet in width. The outer harbour has from 20 feet water to four feet at low-water spring tides, and the general depth of the inner harbour is 6½ feet, but between these two there is a bank which has only 2½ feet water upon it at low-water springs.

Plan referred to.

The plan which I have the honour to transmit will at once explain to their Lordships the nature of the port, and exhibit the serious objections which I consider to apply to it as a station for the packets between Scotland and Ireland.

It will be observed, first, Sir, that it lies open to the prevailing winds, which blow at least eight months out of the year; they are frequently very violent, and always occasion a heavy sea, which rolls into the harbour of Portpatrick with such force that no vessel can lie in the outer harbour with safety, nor in the inner without sustaining injury to her sides and fastenings, and occasionally a derangement of the engines.

See Nos. 15 & 17.

Secondly. There is a bank with only 2½ feet water upon it at low-water spring tides, within 440 feet (three lengths of the packets) of the jetty heads; so that a vessel running in before a gale has not room either to round to or bring up, and she is compelled to run aground, which has hitherto been the practice of the packets.

Thirdly. There is not space for such classed vessels as are required in this sea in order to command a precise and expeditious delivery of the mails, to round M'Cook's Craig conveniently in order to enter the inner harbour, even supposing the obstruction of the shoal to be cleared away.

Fourthly. If during any of the prevalent gales upon the coast an accident were to occur to the machinery of the engine, either while running in or attempting to get out, or if a vessel were to fail in the attempt after she had cleared the jetties, she must either be thrown upon the piers or driven into one of the bays on either side of them, and inevitably lost; or if she were fortunately forced back into the harbour, she could hardly fail of being driven upon M'Cook's Craig and stranded.

Fifthly. Owing to the shallowness of the harbour, it is necessary to detain the packets about an hour and a half after the proper time of starting, for three days about the full and change of the moon; a detention which must destroy the regularity so desirable in the delivery of the mail.

In short, their Lordships cannot fail to observe that it is a dangerous harbour to enter or depart from in tempestuous weather; that it is too shallow, too much exposed, and in every way too small for the purpose.

If, Sir, it should be alleged that for 11 years the packets have used the port daily, and with few exceptions entered it with all winds and in all weathers with only one casualty, the answer is, that it has been done at the imminent peril of life and vessel whenever it has been attempted during a westerly gale, and it has been accomplished only by commanders of great nerve and skill, and who are intimately acquainted with the intricacies of the port; and even these officers, on several occasions, have been either wholly deterred from carrying the mail across, or, having sailed with it, have borne away for other ports, from a conviction of the hopelessness of attempting Portpatrick at such a time. Besides, Sir, after all, it appears that in defiance of the great zeal and intrepidity of the commanders of these packets, there has been a greater irregularity in the delivery of the mails on the Portpatrick station than on any other, and it is to be observed that this has occurred upon a station where the distance to be traversed is less than on any other.

With regard to any improvement that could be made to the port so as to render it a fit station for the packets, I beg to state, Sir, that after a very careful examination and much inquiry upon the spot, I am of opinion that any attempt of that nature would be attended with an expense which would outweigh the advantages to be derived from it.

In the first place, Sir, I conceive it will be necessary to protect the harbour by a breakwater, without which no vessel will be able to lie in the outer harbour, or take it in a gale, without the risk of running aground; and in the next place, to deepen the port to 10 feet at low-water spring tides.

A breakwater, to be of service, will have to be based in from six to eight fathoms water at low water, and must be of the most solid and substantial construction; and to give 10 feet water all over the port, there will require to be removed, at a rough estimate, about 20,000 cubic yards of earth, consisting principally of clay and rock, of which by far the greater portion must be performed by a diving-bell.

See Cairn Ryan and Larne.

The enormous expense which would attend these operations sufficiently justifies me in recommending the abandonment of Portpatrick; especially, Sir, as I shall be able to show their Lordships that there are other ports better situated with regard to the mail deliveries, not far from it, and which may be entered with all winds and in all weathers, and with a moderate outlay may be adapted to the purpose.

I may, perhaps, be allowed, Sir, to mention also, that I am of opinion that the difficulty of entering the port will be considerably increased when the northern jetty is finished, and I do not think it will greatly tranquillize the harbour. With a north-west wind it will be of no use, as a line drawn from the pier head to the south-east passes clear of it; and with a south-west wind it is hardly required, as the sea had better be allowed to expend itself upon the northern pier and at the back of M'Cook's Craig, than suffer a check which will occasion such an agitation in the entrance as will perplex the most skilful helmsmen in a dark stormy night. With the wind between these points, at west for instance, it will cant the sea over upon the southern side of the harbour, in the very place where the packets ought to be in readiness for a start.

See plan.

If the northern pier is to be carried further out, I take the liberty of suggesting its extension in the manner exhibited in my plan upon the slip of paper, which, when turned down, blinds the present pier end.

I may mention also, that the inner harbour would be more quiet without the old pier, which is so placed as to turn the swell which enters the outer harbour into it. If this pier were removed, the swell would take a nearly opposite direction, and expand itself upon the beach of the old harbour. But the removal of this, I must admit, would be a great inconvenience to the small vessels trading with the port.

Correspondence.

See No. 1.
See Nos. 4 & 5.
See Nos. 2 & 3.

In the correspondence annexed you will find, Sir, that Commander Little is of opinion that a long experience at Portpatrick materially diminishes the apparent dangers and difficulties of the port, and that he is now more disposed to think well of it than at the time when his evidence was given to Commander Evans, R.N. In Nos. 4 and 5 also you will find, Sir, the statement made by the carpenter and engineers on the same occasion somewhat qualified; while in Nos. 2 and 3, it appears that a long experience of the commanders of the packets, confirms them in their opinion of the dangerous and difficult nature of the port.

See No. 6.

In No. 6, Mr. Napier is of opinion, "that a steam-vessel of 150 tons, and 75 horse power, drawing six feet three inches water, could be built to answer the passage."

See No. 7.

No. 7, contains an opinion of Captain L. Smithett, as to a saving in time which might have been made by increasing the power of the engines of the packets.

No. 8,

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No. 8, from Commander Little, shows that a small increase of the power of the packets gave more confidence to the commanders, and occasioned greater regularity in the delivery of the mails, and that this regularity would have been still greater had there been a third packet on the station. It also states, that the packets at Portpatrick have communicated with Ireland and returned in six hours, when steamers of greater power would have had much difficulty in getting out of Loch Ryan, and on one occasion actually failed. Captain Little is of opinion, that if Her Majesty's Government should be pleased to put upon the Portpatrick station three vessels, of 130 tons each, and 60 horse power, and drawing seven feet water, the packet duties would be performed equal to, if not better, than any other station. See No. 8. See No. 27, in explanation.

No. 9 is from Commander Little, upon the necessity of improving the light at Portpatrick. No. 9.

No. 10 and No. 11, from Sir John Barrow and the secretary to the Commissioners of Portpatrick, on the same subject. Nos. 10 & 11.

No. 12, on the expresses from Portpatrick with Glasgow mail in 1836. No. 12.

No. 13 contains a statement of the number of days on which the mails were prevented leaving Portpatrick. No. 13.

No. 14, of the number of days they were prevented leaving Donaghadee. No. 14.

No. 15. Statement of the number of mails transmitted through Loch Ryan. No. 15.

No. 16. Statement of the number of mails that have missed the port. No. 16.

No. 17 contains replies of Mr. Wallace, mate of the Fury packet, to questions put to him by Captain Beechey, in which he mentions the grounding of the packets in entering with south-west gales; that a vessel of more than six feet greater length of keel than the Fury could not round the M'Cook's Craig. He thinks it would not be safe to approach Portpatrick after dark in thick weather and with a south-west gale; and states that there are three mornings, about full and change of the moon, when it is necessary to detain the packets from one hour to two hours, on account of the shallowness of the harbour. He also speaks of the badness of the light at Portpatrick; states the length of the passages between Portpatrick and Donaghadee, the safety of entering Donaghadee, and other matter connected with the stations. No. 17.

Donaghadee.

THERE is no serious objection to Donaghadee Harbour as a packet station, as it is situated upon a weather shore during the prevailing wind, and is frequented by the packets during daylight only, and that for not more than an hour or two at a time.

It is certainly very small, and for the most part very shallow; but there is a sufficient depth of water alongside the southern quay for a large-class steamer, where she may, in general, embark carriages and passengers very conveniently. This may always be done with the wind from north round by the west to about south-east, as the harbour is then tranquil; but when the wind draws to the eastward of these bearings, the sea rolls in, and the vessels ride heavily, and can with difficulty be prevented damaging themselves against the quay and each other. At high water this is much increased, as the sea then finds its way in, both at the entrance of the port and by the western end of the northern quay.

In consequence of this cross swell, vessels are obliged to haul off from the quay on the approach of bad weather, and to lie with their heads across the harbour. Their cables and anchors are of necessity carried out in the same direction, and stretched directly across the entrance of the harbour, and are thus liable to be carried away by vessels running in; and there is no possibility of avoiding this, as the deep water is confined to a small space only on the south-eastern part of the harbour.

There is no difficulty in making the harbour of Donaghadee; it may be approached with safety in any weather. The Copeland Islands have a good light at night, and are bold; there is also a good harbour light, and in thick weather the bank, called the Rig, is an excellent guide to a vessel to the southward of the Copelands.

With an easterly gale, however, it would be very dangerous to take the harbour in any vessel that did not lose her way readily on a back turn of the engine, and which was not of very small draught of water.

The African would inevitably run aground, were she to attempt the port under such circumstances.

I have the honour to annex a sketch of the port, for their Lordships' inspection; a reference to which will furnish more information than any description which I can give in writing. It will there be seen to what a small part of the harbour the deep water is confined; that there is only six feet in the centre at a distance of only 240 feet from the entrance. To avoid this, a vessel must haul short round into the south-east angle of the port, and instantly deaden her way, to escape running against the pier; were she to drop her anchor under foot at low water, she would be liable to be damaged by the fluke. It will also be seen, Sir, that there is a large space between the western end of the north pier and the wharf B, through which at a quarter flood the sea is admitted to the harbour, and with easterly gales rolls in with great violence. See the plan.

These defects, which it must be admitted render Donaghadee extremely objectionable as a harbour of refuge, do not incapacitate it from being continued as a packet station; for whenever the wind is in an unfavourable quarter for the tranquillity of the harbour, it is favourable to the passage across from Portpatrick, and the packets arrive early and depart during daylight: on the contrary, when they are delayed until after daylight, which can only be with westerly

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gales, the harbour is smooth and safe of entrance. But were this port in the situation of Portpatrick, it could not be frequented with safety.

Should it be ever their Lordships' intention to improve this port, much might be done with a moderate outlay. The harbour might be deepened to 10 feet all over as far as the old pier, and a rough rubble breakwater might be constructed at a small expense upon that part of the harbour which dries, between the wharf B and the northern pier. It would not be necessary to carry this the whole of the way; an opening of 140 feet might be left with advantage to the port, near the west-end of the pier, to solicit the direction of the wave which finds its way in at the entrance E, and thus lessen the rebound of the water towards that part of the harbour occupied by the shipping; it would also afford an easy egress, with particular winds, to small craft quitting the port at half tide.

Had this harbour been constructed for steam-vessels only, the entrance would no doubt have been differently placed; at present there is shelter on neither side of it with easterly winds; but if it had been at the north-east angle, two-thirds of the harbour would have been available with all winds, especially if the breakwater had been carried out from the wharf B, and buoys might then have been laid down to mushroom a screw moorings on the south side of the entrance, without obstructing the passage or endangering the bilging of vessels coming in. Vessels steadied between them and the rings in the piers, would have been able to ride in safety to themselves and others, which is far from being the case at present.

The space H, within the old pier, being more protected, would then have formed a good dry harbour for small vessels, and thus have freed the outer harbour from an incumbrance at present extremely inconvenient.

Correspondence.

No. 18. In No. 18, Mr. Davies, the harbour-master and chief officer at Donaghadee, offers some remarks upon the report made by Commander Evans on Donaghadee. He is of the same opinion at present as he entertained at that time; states that the danger apprehended from the height of the lighthouse has not occurred, but that it is unnecessarily high.

Loch Ryan.

LOCH RYAN is a deep inlet ten miles in extent, accessible at all times, and one in which vessels may ride with all winds in perfect security. It may be approached with safety either by night or day, and with a moderate outlay might be rendered a highly desirable station for the mail packets to go from, on the Scotch side.

There are three places in the Loch which have been pointed out as eligible spots for the embarkation of the mails, passengers, &c. &c.; viz. Cairn Ryan, Stranraer, and Finnert Bay. Stranraer is at present the most secure anchorage; but as a pier must be built in the event of either being selected, this is of no consequence. A pier at Stranraer would be attended with less expense than at Cairn Ryan, and in a commercial point of view there are many reasons why that place would be preferable to Cairn Ryan; but on the other hand, there are some serious objections to it. The shoal called the Scaur would endanger vessels entering at night or in thick weather, and the mail would have to travel five miles further by land, and the same distance back again by water, which would occasion an hour and a half delay in the packet clearing the Loch; an interval sufficiently great to miss the Derry mail in its passage through Ballymena, by which a day's correspondence with the North of Ireland would be lost.

Finnert Bay is two miles nearer the entrance than Cairn Bay, but the anchorage is much too exposed to be frequented in its present state; and to render it a secure port would require very extensive and substantial works, which would far outweigh in expense the advantage of two miles only which would be gained by its adoption.

I have therefore no hesitation in recommending Cairn Ryan as the fittest spot in Loch Ryan for the station.

See Memorial, No. 20.

See letter from Lieut. Kelly, No. 22.

It has been stated in a memorial of the inhabitants of Stranraer, that the foundation in Cairn Bay is supposed to be boggy, and unfit for a pier; but I can find no good authority for such an assertion: on the contrary, it has been tried on an occasion of a vessel being dug out, and found to be solid clay; and our own experience in weighing in the Roads confirms this experiment. The ground was tried, moreover, by one of the African's boats, by forcing a tube several feet into the ground, and examining the soil brought up, which was stiff clay, with a superstratum of shingle and stones.

On this head it does not appear that Stranraer has the advantage of Cairn Ryan; for the outer end of the pier erected there has sunk two feet from the line upon which it was originally built.

See Stranraer Memorial, No. 20. Another objection which has been made to Cairn Bay as an anchorage, is the rough riding vessels find there with a strong south-west wind, which has on several occasions forced vessels from their anchors and driven them on shore.

A reference to the plan of Loch Ryan will show that the greatest fetch the sea can have in that port is five miles; and that about half way or less, there is the Scaur Shoal to break, in some degree, any sea that could possibly get up in so short distance.

Several vessels have, it is true, been driven on shore upon the beach of the Cairn; but Lieut. Kelly has explained in a satisfactory manner how those accidents have occurred. It appears from the report of that officer, that no vessel properly found in ground tackle, and well anchored, ever drove on shore during the five years that he has been stationed at the port.

See Lieut. Kelly's letter, No. 22.

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The tides also are asserted to be violent at the Cairn; but I did not find them so. By our experiments they are only 2½ miles per hour at the anchorage, and were scarcely felt upon the bank in the situation of the proposed harbour.

Immediately off the Cairn Point, and between that and the Scaur, the stream ran somewhat faster; but this inconvenience, if it be one, would be more felt by the Stranraer steamer than the others, as she would have to steam against it a much greater distance.

The memorial states also that there is a want of accommodation at Cairn Ryan for storehouses and other buildings necessary to a packet establishment; but it will be seen in the plan that the level ground about Claddy Point will afford all the accommodation in this respect that can be required; and as regards any expense attending their erection, it seems to me that the ground may be obtained and houses built at less cost at Cairn Ryan than at Stranraer, where the space is already occupied by dwelling-houses and stores.

A mere extension of the pier at Stranraer to double its present length, as stated in the memorial, will not afford the requisite accommodation to the steam-packets, as the harbour when formed, being open to all steamers and sailing vessels trading to the place, will require to be enlarged accordingly. In its present state the pier is in general so occupied that a boat can scarcely get access to it.

I cannot therefore, Sir, concur with the memorial, either in the objections to Cairn Ryan as a station, or the advantages which Stranraer possesses over it; but on the contrary, I am of opinion that the situation of Cairn Ryan is so decidedly preferable, on account of its being so much nearer both to Glasgow and to the entrance of the Loch, that I do not hesitate to give it the preference.

In order, Sir, to adapt Cairn Ryan to a station, it will be necessary to erect a pier for the purpose of landing and embarking passengers, carriages, &c.; for taking in coals expeditiously, and for ensuring the perfect tranquillity of the harbour. In my plan of this bay I have marked the situation which appeared the most advantageous for this purpose; it stands upon the bank, in from 12 to 14 feet water at low-water spring tides, and has its entrance to the northward well shut in from any sea that may find its way into the Loch by Cairn Point, overlapping the north-west point of entrance; it is also out of the line of the tides.

If such a pier as I have sketched were erected, a slip might be constructed within it upon which the packets might undergo any necessary repairs, and thus obviate the inconvenience of sending them to Glasgow or Holyhead for that purpose.

This situation has also the advantage of a stream of water, which might readily be conveyed in pipes along the pier for the purpose of filling the boilers with fresh water.

It will be necessary also to erect a low lighthouse upon Cairn Point; but this would be requisite in either case, and indeed is very much wanted under any circumstances.

Loch Ryan is a port of refuge for numerous shipping during the winter, and not less than 360 vessels have been wind-bound there in the course of that season. See Lieut. Kelly's statement, No. 27, answer 4.

The Corsewall Light is an excellent guide to the entrance of the Loch, but there it ceases to be of use, and the navigator, in the dark, turns up the Loch, in dread of the Scaur on one side and of Cairn Point on the other, which having deep water close to it, gives no warning.

If there were a light upon this point, which has seven fathoms water within a stone-cast of it, a vessel might run boldly for it, and take her berth under it in perfect safety and in the darkest night. The light might also be made to serve the double purpose of pointing out the position of the point and of giving warning of a too near approach to the Scaur, by colouring the reflectors in a line drawn from the lighthouse to Cleughan Hugh on one side, and in a line leading to the eastward of the Scaur Point on the other. A lighthouse 18 or 20 feet high would be sufficient for the purpose.

Correspondence.

In letter No. 19 you will find, Sir, the opinion of Mr. M'Neel, the collector of the customs at Stranraer, with regard to any improvement that might be expected in the trade of the port from fixing the packet station in Loch Ryan. No. 19.

And in No. 20, the apparent advantages of Stranraer, and disadvantages of Cairn Ryan, of which mention has just been made. No. 20.

No. 21 contains the opinion of Mr. James M'Kie, agent for Lloyd's in the South of Scotland, with regard to the ports of Cairn Ryan and Stranraer, in which he gives the preference to the latter. He speaks of the severity of south-west gales at Cairn Ryan, and states that vessels driven from that anchorage take shelter at Stranraer. No. 21.

As I have not referred to this letter, I shall merely mention in this place that a vessel cannot run for Stranraer from Loch Ryan with a south-west gale, as the course is S. S. W. to the point of the Scaur, and W. S. W. afterwards; and for a vessel to reach Stranraer the wind must be well to the northward of west, in which direction from Cairn Ryan the sea has not one mile and a half fetch.

No. 22 is a letter from Lieutenant Kelly, R. N., referred to in speaking of the bottom at Cairn Ryan, and of the vessels which have driven from their anchors in that place. No. 22.

No. 23 is also from Lieutenant Kelly on the same subject. No. 23.

No. 24 contains the opinions of Mr. Oliver, who has been many years in command of a revenue brig on the west coast of Scotland. He considers Loch Ryan a safe port to run for, except in thick weather with a northerly gale, and that a light is very much required upon Cairn Point. He doubts the possibility of a vessel crossing from Loch Ryan to Larne in a heavy W. S. W. gale, but has no doubt but that the passage might be accomplished in a moderate gale by steam-vessels of the class of those at Milford. He also doubts the possibility

Appendix, No. 23.

Selections from Capt. Beechey's Report on Packet Stations, 1 Oct. 1837.

sibility of a steamer clearing Loch Ryan with a heavy north-west gale and flood tide. You will find also, Sir, the opinion of this officer on the safety of approaching Larne, and on making the passage across the north channel. He states also that Cairn Ryan is a safe anchorage, and that it rarely occurs that a communication with the shore cannot be kept up.

No. 25. No. 25 contains the opinions of Sir J. Reed, bart., commanding a revenue cruiser also; they are on the same subject and similar to those of Mr. Oliver, but more favourable to the port of Loch Ryan and to the passage across to Larne.

No. 26. No. 26 was furnished at my request by the master of the Maid of Galloway, a steam-vessel trading between Stranraer, Whitehaven, and Belfast. It contains his answers to the same questions as were put to Sir J. Reed and Mr. Oliver. They are more favourable still to the port of Loch Ryan and the practicability of effecting the passage across to Larne at all times, and to the safety of approaching that port in all weathers.

He states the average length of the passage of his vessel from Stranraer to Belfast to be five hours and a half, and that with a W. S. W. gale it might be seven or eight hours.

No. 27. No. 27 is from Lieutenant Kelly, R. N., and already referred to in speaking of the anchorage at Cairn Ryan. In this letter he states the reason why the steamers failed in getting round Corsewall Point and remained at Loch Ryan with a northerly gale, in answer to questions which I put to him in consequence of it being asserted that some steam-vessels had failed in their attempt to get out of the Loch with a northerly gale *. This letter also contains a statement of the number of vessels which took shelter in Cairn Ryan in 1835 and 1836.

* See page 325.

Larne.

This is a very safe port, and, for a steam-boat especially, easy of exit and entry. There is a lighthouse nearly completed at its eastern point of entrance, which, with a pier light on the opposite side, would conduct vessels to the anchorage in safety on the darkest nights.

The approach to this port from the northward was formerly hazardous, on account of the Maidens, a dangerous reef of rocks situated in that direction, and the Hunter, a rock with six feet water over it, lying about two-thirds way from the lights to the entrance of Larne. But there are now two good lights upon the Maidens, which are thus rendered a guide for avoiding both dangers.

The Hunter is buoyed, but it would be safer for vessels approaching Larne in thick weather if this rock were blasted, so as to give six feet more water over it than there is at present; which may be done, I conceive, at a very moderate expense.

To the southward of Larne the coast is high and bold, and may be approached in any weather, in a steamer, with perfect safety.

There is a jetty just within the entrance of Larne, which has 12 feet water alongside it at all times of tide. In appearance, it stands in a very exposed situation; but for two years a steam-vessel trading to the port has discharged her cargo there every Wednesday, winter and summer, without fail.

This jetty will be at the service of the Government packet; but as it is very slightly built, and may be occupied at the moment the packet wants to land her mail and passengers, and as it appears to me that, notwithstanding the steamer has punctually landed her cargo at it, there must occasionally be a considerable swell alongside of it, I should recommend a small pier being constructed higher up the harbour, for the exclusive use of the packets.

In my sketch of the port I have marked a place which appears to me to be the most eligible for this purpose; it stands upon the ground which the Government rent of Mr. Agnew. One hundred and seventy yards of pier would command 17 feet water at low-water spring tides, and allow of vessels lying on either side of it as most convenient for wind and swell.

This pier would not require to be built very substantially, as there is never any swell of consequence in the port; and the expense would be kept low by an abundance of lime and stone fit for the purpose in the immediate vicinity.

There is a good road from the port to the town of Larne, and a mail-coach at present running between that place and Belfast, which, by a little encouragement, would convey the mail to Belfast with the necessary dispatch.

Correspondence.

I have not heard any objections to the port of Larne as a packet station. With regard to the approach to it in thick weather, Mr. Oliver (No. 24) thinks it would not be safe to run for the port at such a time, with the wind on shore; but I apprehend he intends to confine his observation to sailing vessels; for, since I put my questions to him, I have navigated the coast of Antrim from Larne to Belfast Loch, within a stone's-cast the whole of the way, and know of no coast which I should approach with greater confidence in any weather. Muck Island is particularly well situated as a leading mark to Larne; as, in the event of seeing it in thick weather, with the wind dead upon the shore, there would be no difficulty in getting into either Larne or the Loch of Belfast. In Nos. 25 and 26, Sir, you will find this opinion corroborated.

No. 28. No. 28 is a copy of the petition of the inhabitants of Larne to the House of Commons; upon which I have only to remark, that it is a mistake to state that by the transmission of the mail through Larne there would be a gain of 12 hours to all places beyond Dublin (*see* 6th section of Petition, No. 28); as it is not possible to effect this, unless the Glasgow mail can be brought to the place of embarkation on the Scotch side three hours earlier than at present.

Appendix, No. 24.

LETTER from Sir *John Rennie* to Sir *John Barrow*, Bart.

Appendix, No. 24.

Letter from Sir John Rennie to Sir John Barrow, Bart.
25 April 1842.

Sir, London, 25 April 1842.

I beg leave to acknowledge the receipt of your letter of the 14th ult. accompanied by the Report of Captain Beechey, of the 1st of October 1837, and the several other documents, relative to the most eligible ports for the mail-packets, for the purpose of carrying on the communication between the south-west part of Scotland and the North of Ireland, upon which you inform me that the Lords Commissioners of the Admiralty desire to have my opinion. The subject is one of great importance, and has occupied the attention and serious consideration of some of the ablest nautical as well as civil engineering authorities for upwards of half a century, and many and various have been the opinions given upon it. The question, however, divested of all extraneous matter, may simply be divided into two parts.

1. What, under all the circumstances, are the best stations on each side of the Channel, comprehended within a reasonable distance, for carrying on the communication between the South of Scotland and the North of Ireland.

2. What accommodation is required at the ports selected, in order to enable the communication to be carried on in the most regular and efficient and economical manner.

With regard to the first: Commencing with the present stations of Portpatrick and Donaghadee, it appears that they were selected by the public for the purpose of carrying on the communication between the South of Scotland and the North of Ireland, from the earliest records; and about the year 1770, a small pier was constructed at Portpatrick on the east side of the Bay, by Smeaton, previous to which the place was in a state of nature. Smeaton says, "The harbour of Portpatrick is at present entirely in a state of nature, a small platform for the more commodious landing and shipping of passengers, &c. excepted; and indeed it has many natural advantages, being very easy of access, and of sufficient depth to ride the vessels proper to be employed afloat at low water, and to protect them from storms coming from seven-eighths of the whole compass, and had the remaining eighth been as well guarded as the rest, the harbour had been complete." Another pier was constructed on the south side of Donaghadee Bay, it is supposed about the same time. Both of these stations were what is termed tide harbours. In this state they remained until about the year 1800, when complaints having been made as to their inefficiency, the subject was taken up in a comprehensive manner by Parliament in the year 1802; nothing however was done until the year 1808, when the late Mr. Telford and Captain M'Kerlie, of the navy, were appointed by the Government to survey both sides of the Channel and investigate the subject fully, in order to ascertain whether the stations of Portpatrick and Donaghadee were, under all the circumstances, the best adapted for carrying on the communication; and if so, whether any, or what improvements could be made in them to render them more efficient, or whether any other and what places could be selected, offering more advantages as packet-stations, and the improvements that would be necessary to render them efficient.

These gentlemen, after making a very detailed and elaborate survey of the whole coast on both sides of the Channel, finally made their Report in 1809, and recommended that Donaghadee and Portpatrick should be abandoned, and that new harbours should be constructed at the Bay of Port Nessock on the Scotch side, 11 miles to the eastward of Portpatrick and Bangor Bay on the Irish side, about seven miles to the westward of Donaghadee, nearer to the entrance of the Lough of Belfast. The propriety of this decision being much questioned, and not giving satisfaction, the whole question was opened again. The late Mr. Rennie, in the year 1814, was appointed by the Postmaster-general to survey both sides of the Channel between the Mull of Galloway and Corsewall Point on the Scotch side, and Burr Isle and the Lough of Belfast on the Irish side.

Accordingly, in the year 1815, Mr. Rennie prepared charts and obtained the necessary local information connected with every place where any probability existed of making a harbour, including Portpatrick, Ardwell, and Port Nessock Bay, on the Scotch side, and Bangor, Ballyholme, Port Avo, and Donaghadee, on the Irish side, and transmitted the documents to the Lords of the Treasury, who after paying due attention to the various conflicting opinions and interests concerned, finally, at the recommendation of the late Mr. Rennie, referred the whole question, not only including the documents proposed by the late Mr. Rennie, but also those of Mr. Telford and Captain M'Kerlie, and of every other person at all conversant with the subject, to the Trinity Board, as the most impartial and competent nautical authority to decide the question. This was accordingly done, and the Trinity Board, after having thoroughly investigated all the documents transmitted to them, and having obtained such other information as appeared to them necessary, finally, on the 9th February 1818, recommended that Portpatrick should be adopted as the most eligible station on the Scotch side; and after having called for further surveys relative to the Irish side, on the 6th October 1819, gave it as their decision that Donaghadee should be adopted on the Irish side, and that the harbours of these two places should be converted into low-water harbours, and improved as far as practicable, to render them complete for the purpose of carrying on the communication between this part of Scotland and Ireland in the most efficient manner possible. The Lords of the Treasury adopted the recommendation of the Trinity Board, and directed the late Mr. Rennie to prepare plans accordingly for the improvement of Portpatrick and Donaghadee Harbours, which he did in the year 1820, and separate Acts of Par-

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liament were passed authorising the Treasury to grant the necessary funds for carrying them into effect, and increasing the rates of postage on all letters between part of the two countries, to enable them to defray the expense. The harbours accordingly were commenced in 1821; that of Donaghadee was completed in 1836, according to the accompanying plan, and that of Portpatrick has been carried on up to the present time, when the south pier is nearly completed, and the north pier, with the exception of the jetty and pier head, although steam-boats to carry the mails were established about the year 1826. In the year 1823, before any considerable progress had been made in either of the harbours, a Committee of the House of Lords was appointed to investigate the different circumstances as regarded the eligibility of Portpatrick and Donaghadee for the stations for the packets. In the course of the discussion various other places were brought forward as being superior, but nothing occurred to invalidate the conclusion of the Trinity Board, and the Committee after hearing all the evidence, decided, I understand, that Donaghadee and Portpatrick were the proper stations, and the works proceeded without interruption until the year 1830, when the subject was renewed, and a Committee of investigation was appointed by the House of Commons, which, after having again heard all the evidence adduced in favour of Glasgow, Greenock, Ardrossan and the Troon, Loch Ryan and Belfast, and against Donaghadee and Portpatrick, again decided that it was not advisable to alter them. In the year 1834 a commission was appointed by the Government to examine all the Post-office packet stations, and amongst others that of Donaghadee and Portpatrick, when it does not appear that any alteration was decided upon; still, however, the subject was again revived in 1836, and the Report of Capt. Beechey has been the result; and here it may be naturally asked, after such repeated investigations and discussions during a period of above 30 years, what were the reasons which induced the authorities of 1770, the Trinity Board in 1820, and the Committee of the House of Lords in 1823, and that of the House of Commons in 1830, to decide in favour of Portpatrick and Donaghadee, as being the best stations, under all the circumstances, to carry on the communication between the south-west of Scotland and Ireland; these I understand were—

First. The distance, which is only 21 ½ miles, being the shortest possible between the two countries, with the exception of that between the Mull of Cantire and the opposite coast of Antrim, and which is so much out of the way that it is entirely out of the question: this is, without doubt, a most important point, particularly during the winter season, when storms from southerly and westerly points are very prevalent, and render the Scotch side of the Channel a lee shore; under such circumstances every additional mile of distance, either to a sailing or steam vessel contending against a heavy gale, is of serious consequence; the risk of accident, which in long voyages is greatly increased between Portpatrick and Donaghadee, is reduced to comparatively nothing; and although a well-constructed and powerful steam-vessel can do a great deal, nevertheless she is liable to an accident, which, if such should take place, the passage may be prevented or materially retarded, which invariably happens during stormy weather, for even with the powerful steamers of the Liverpool and Holyhead stations the passage is increased from 10 to 20 hours in the former, and six to 12 in the latter; moreover, a lull of one or two hours frequently occurs during the most severe storms, when a short passage of 21 miles would be effected, which in a longer one would never be attempted.

Secondly. From the prevalence of winds from the westerly and southerly points for nine or ten months out of the year, the short passage possesses most material advantages, for it must frequently be made striving against a heavy south-westerly gale and head-sea; but after the first half of the passage is made, the fetch of the sea is diminished, and the water becomes comparatively smooth, whereas in a longer passage this advantage could not be had.

Thirdly. The sets of the tides form an important feature in this passage; at Portpatrick spring tides rise 13 ft. 3 in., neaps 7 ft. to 7 ft. 6 in.; it is high water at the full and change of the moon at 11 A. M., but the highest tides flow until three-quarters past 12; the time of the flood and ebb are nearly the same, but upon the whole the duration of the flood is rather less than that of the ebb, and the flood current is therefore the strongest; it makes along the shore about an hour and a half before low water, and runs to the southward within two hours before high water, it then turns to the northward, and continues in that direction until within an hour and a half of low water; the flood current in the Channel makes to the south-east about an hour before low water, and continues in that direction until within about a hour of high water; the separation of the inshore and Channel tides is distant about a quarter of a mile from the shore, and at springs runs at the rate of about three miles per hour, and at times more; supposing, therefore, a packet to start from Portpatrick two hours before low water, during the springs, with a heavy gale from the south-west, which is the most unfavourable time, she would have the current setting in a contrary direction to the wind, and thus prevent her going to leeward, and make her passage without difficulty before the flood current could affect her; again, if she happened to start from Portpatrick during neaps, the wind being the same way, the current would be so trifling as to have very little* Donaghadee lies west and by south from Portpatrick; springs flow 12 feet, neaps 7; it is high water at the full and change at 11, but the best tides flow about 12 o'clock. The flood current makes to the south along shore about two hours before low water, and continues in that direction until low water; it then turns to the northward and continues in that direction until within two hours of low water, so that there are only two hours of south current and 10 hours of north current; so that if a packet sailing from Portpatrick should be carried by the flood current to the southward, as she approaches Donaghadee she finds it in her favour. In the channels between the Copland Islands the current was five hours and a half to the south

* So in the copy.

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south and six hours and a half to the north; outside of the islands there is an east or off-going current, which sets south until within one hour and a half of low water, then south-east by south to within one hour and a half of high water; it then changes its course north for four hours and a half or to three hours after high water; the channel tide then makes on it and changes it to west-north-west until within one hour of low water; so that this off-going or east current has nearly six hours' flood, and rather more ebb. As the packet always starts from five to six A. M. from Portpatrick, if she had power enough these currents would either be turned to her assistance in making the passage, or else create little or no impediment. It is almost unnecessary to make any remarks upon the passage from Donaghadee to Portpatrick, because as the wind is generally favourable from that quarter, there is no difficulty except during easterly storms, where after steaming a few miles against the wind, she soon gets under protection of the high land on the Scotch side, with a smooth sea, and effects her passage with very little delay.

Fourthly. The coast on either side is clear of rocks and shoals, the land is bold, the water deep, and is easily made for in foggy weather; so that, whether as regards distance, winds, tides, absence of shoals, all of which are most important, the advantage is in favour of Donaghadee and Portpatrick. I now come to the harbours: Portpatrick, when completed, will consist of two piers; that on the south side is 620 feet long from the shore, with a jetty 80 feet long at 120 feet from the extremity; the north pier will be 650 feet long, with a corresponding jetty of the same dimensions, leaving a clear opening between them of 180 feet for an entrance pointing south-west by south by compass; the depth at the entrance varies from 17 to 20 at low water of spring tides, and decreases to six and seven feet at the inner harbour, but less at the entrance to it. The south pier and jetty may be said to be nearly finished, and the north pier also, with the exception of the jetty (for it is not necessary to finish the head) and the removal of some of the rocks and part of the old pier, and enlarging, deepening the entrance to the interior of the harbour. The harbour, therefore, in its present state, cannot afford that protection either when the packets are in, or that facility of ingress and egress which it would do if completed. The packets, moreover, are greatly deficient in power for their size, having only engines of the united power of 50 horses, and ill adapted for the passage; notwithstanding, however, these temporary defects, it is a notorious fact that the mails have been carried upon this station with a degree of regularity very little surpassed by any other stations possessing superior advantages.

It appears from the journal of Mr. Linn, the resident engineer, that during last year there was only one day, viz. the 3d of January 1841, that the packet did not sail from Portpatrick; and from the 26th January last year to the present time, there have been only two mails that did not arrive from Donaghadee; but in consequence of the mail arriving at Donaghadee from Belfast frequently from two hours and a half to four hours and a half behind the time, the packet cannot arrive at Portpatrick in time for the Glasgow mail, so that they are sometimes obliged to be forwarded by express to Glasgow; this, however, is not the fault of Portpatrick, such is the state of the communication, even with the present unfinished state of Portpatrick Harbour, and the very inefficient packets belonging to the station; if, however, the harbour be completed, and the interior enlarged and deepened, and some of the rocks removed, together with part of the old pier, so that there may be always seven feet at low water of spring tides at the entrance to the inner harbour, packets of about 100 to 110 feet long, and about 20 to 22 feet beam, with a draught of 6 feet to 6 feet 6 inches, and engines of 100 to 110 horse power, (the present packets drawing 6 feet 10 inches, with only 50 horse power,) there would be ample room for the packets either to bring up in or to get sufficient way upon them on starting, and the passage would seldom, if ever, exceed three to four hours, and generally in one and a half to two hours; and if the mail from Carlisle was made to travel at the same speed as upon any other road (whereas at present it seldom exceeds eight miles per hour), it would arrive at Portpatrick at five (or earlier if the new Galloway road be adopted) instead of seven in the morning, and thus generally reach Donaghadee by seven or nine in stormy weather, and Belfast by half past eight or eleven in the morning during stormy weather; and then start from Belfast at two, reach Donaghadee at half-past three, and then Portpatrick at half-past five, and always in time for the Glasgow and Carlisle mails; and thus letters might be answered by the same post, and a day saved. In fact, from some cause or other, this station has been neglected; but by completing the harbour of Portpatrick, and having proper packets, it would be one of the most efficient in the kingdom for the purpose. Donaghadee consists of two piers; the south one attached to the shore 900 feet long, and the north or breakwater pier 820 feet long, with an outer entrance 150 feet wide, and the inner 575 feet; the entrance points north-east by north; the depth at the entrance is 15 feet 6 inches, diminishing to 8 feet at low-water spring-tides, near the old pier foundations. Captain Beechey makes no remarks about Donaghadee, except that it is too small, and there is a little swell during easterly winds; this, however, is so trifling, as to be scarcely deserving of notice, and no serious inconvenience has ever arisen to their packets from it, either whilst entering, departing, or lying there. Indeed, to make larger harbours or packets than those above mentioned is perfectly unnecessary, and would only be a useless expenditure of public money; because, in any case, the great mass of passengers would generally go from Greenock to Ardrossan direct to Belfast; and after all, if incurred, the mails would not be carried more regularly or more quickly, but very probably less so, and at a much greater expense. Having thus, I hope satisfactorily, discussed the question, as far as the present stations are concerned, I will now proceed to examine the stations of Loch Ryan and Larne, as proposed by Captain Beechey to be substituted for them.

First, as regards the distance. This, according to Captain Beechey, is 34 miles, or nearly

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13 miles more than between Portpatrick and Donaghadee; and as Corsewall Point is to the eastward of Lough Larne, and the prevailing winds are westerly, the bearings of Larne and Corsewall are the same nearly as between Donaghadee and Portpatrick, and the helch of sea greater. The passage must be made under far greater disadvantages, and instead of being performed, as between Donaghadee and Portpatrick, in three to four hours during stormy weather, it would occupy from five to six hours, according to Captain Beechey. Again, a shoal, called the Hunter's Rock, lies in front of Loch Larne, and the Maiden's Reef a little to the northward, which in foggy weather and strong ebb tide are very dangerous and difficult to avoid. It is seen that the distance from Glasgow to Cairn Ryan is about 15 miles less than to Portpatrick; nevertheless, the distance from Dumfries to Cairn Ryan is nearly the same, even by Stranraer, but shorter to Portpatrick from Glenluce; but as the packets could not start until both mails had arrived, there would be no saving in this respect: in fact, at present the Glasgow mails arrive at Portpatrick about two hours before the Dumfries mail, and were this latter to be accelerated, which might only be done as before mentioned, the mail might reach Belfast, even with the present inefficient packets, one to two hours earlier than at present. In order to encounter and complete within the time this extra length of sea passage, Captain Beechey proposes to employ vessels of the same tonnage and power as those between Liverpool and Kingstown; these are I understand worked by engines of 300 horses power. The first cost of these packets would be from 25,000 *l.* to 30,000 *l.* each, besides the wear and tear, expense of establishment, extra consumption of fuel, and extra men, which could not well be taken, according to the returns lately presented to Parliament of the cost of the different stations, at less than 5,724 *l.* for each, or 11,448 *l.* for both, besides the expense of two new harbours, which, according to the plans proposed would probably cost from 150,000 *l.* to 200,000 *l.*; this taken at five per cent., would be 8,750 *l.* per annum, besides the two packets at five per cent., or 3,000 *l.* per annum, and the expense of working at 11,448 *l.*; so that the total cost of this station would be 23,198 *l.* per annum; whereas that at Portpatrick (including 24,274 *l.* to complete the harbour, 7,865 *l.* to deepen and enlarge the interior, making a total of 32,139 *l.*) at five per cent., or 1,607 *l.* per annum, and 18,000 *l.* to 20,000 *l.* for two new packets at five per cent., or 1,000 *l.* per annum, 6,462 *l.* for working, wear, tear, coals, establishment ashore and afloat, making a total of 8,062 *l.* per annum, or 15,136 *l.* less than the Loch Ryan station, being little more than one-third, whilst there would be an absolute loss of one to two hours in the delivery of the mail at Belfast; because, supposing the mail to start from Cairn Ryan at five A.M., it could not, according to Captain Beechey's calculation, make Lough Larne before half-past 10 or 11 in stormy weather, (which is the time to calculate upon) and being 21 miles from Belfast, it could not arrive there before one P.M.; whereas, by Portpatrick, it could start at five A.M., and reach Donaghadee at eight, or half-past eight or nine, and Belfast at half-past 10 or 11, with a clear saving of 15,136 *l.* per annum to the public. I say nothing about the capability of Loch Ryan and Larne as fine harbours, for they are well known and duly appreciated; but the question to be decided is, which, under all the circumstances, are best adapted to carry on a certain, regular, expeditious, and economical communication between this part of the two countries, and the advantages, whether as regards distance, prevailing winds, tides, &c., and expense. I am of opinion decidedly in favour of Portpatrick and Donaghadee. If it should be considered advisable to contract for carrying the mails between Portpatrick and Donaghadee, it would be done for considerably less than I have stated; indeed, an offer was made to the Treasury in 1840 to carry them for 4,500 *l.* per annum, if the harbour of Portpatrick was to be completed, including powerful packets and every expense; but as there would be no adequate means for remuneration with such expensive packets as those which must be employed between Loch Ryan and Larne, I doubt much whether contractors would be found to undertake to carry the mail for much less than I have stated. It should, moreover, be observed, that during strong northerly winds a heavy sea sets into Loch Ryan, so much so, that the steamers plying between Stranraer and Glasgow do not venture to leave their moorings, whilst the present inefficient packets of less power make their passage between Portpatrick and Donaghadee without difficulty.

With regard to Captain Beechey's observations on the passage between Glasgow and Greenock, they are entitled to every attention, and he has put the question as regards this station in a very clear point of view. He states that as a mail packet must start at a certain hour every day, during bad weather, and the wind blowing a gale from the south, the tide against her nearly the whole way, which happens four days in a fortnight, the passage would not be accomplished under 20 or 22 hours; and as the mail could not leave Greenock before 5 P.M., consequently she would not reach Belfast before 1 or 3 P.M., which would be two hours later than at present, and, even at the average passage, before 8. It might also have been added, supposing the mail to start from Greenock, what is to become of all the intermediate district between Greenock and Portpatrick, and Stranraer and Dumfries, comprehending a line of country nearly 180 miles long, and the important towns of Ardrossan, Kilmarnock, Ayr, Girvan, Maybole, Stranraer, Glenluce, Newton Stewart, Cree Town, Gatehouse, Castle Douglas, all of which must be sacrificed or send their correspondence by the circuitous route to Greenock, at a considerable extra delay and cost? The same objections may be urged against Ardrossan, the Troon, Ayr, and the immediate places in a lesser degree or proportion to the distance.

Captain Beechey has confined the decision of the stations to Loch Ryan and Portpatrick; and, as regards these, with all due deference, I am clearly of opinion, that, whether as regards distance, saving of time in making the passage and delivering the mails to and from Belfast, economy of the packets, the establishment of the great annual saving of expense, amounting to 15,136 *l.*, as above stated, the advantages are decidedly in favour of Portpatrick

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Portpatrick and Donaghadee; and, as such, I would strongly recommend their Lordships to adhere to a station which has now been adopted above 70 years; and, notwithstanding the disadvantages it has laboured under of unfinished harbours and inefficient packets, has maintained the communication between Scotland and Ireland in this stormy part of the Channel with a degree of regularity which is really surprising under the circumstances.

I have, &c.
(signed) *John Rennie.*

Appendix, No. 25.

Appendix, No. 25.

Vessels Entered Inwards and Cleared Outwards to and from the Bristol Channel.

RETURNS of the Number of VESSELS, with the Amount of their TONNAGE, which have Entered Inwards and Cleared Outwards to and from the following Ports in the *Bristol Channel*; viz. *Gloucester, Bristol, Ilfracombe, Bideford, Newport, Cardiff, Swansea, Llanelly* and *Pembrey, Milford* and *Pembroke*, to and from the several Ports in *Ireland*, distinguishing the various Ports; and also distinguishing Colliers, with the Amount of their Cargoes, from other Vessels, for the Three Years ending 31 December 1841.

—	ENTERED INWARDS.		CLEARED OUTWARDS.				
			COLLIERS.			OTHER VESSELS.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Amount of Cargo.	Vessels.	Tonnage.
IN THE YEAR 1839:							
					£.		
Gloucester - -	210	14,065	69	6,080	8,388	92	6,110
Bristol - - -	430	75,173	6	455	392	302	64,483
Ilfracombe - -	4	343	- -	- -	- -	4	230
Bideford - - -	3	252	- -	- -	- -	1	47
Newport - - -	341	27,017	1,271	123,008	161,571	156	12,942
Cardiff - - -	178	12,952	597	54,229	76,628	121	8,696
Swansea - - -	404	26,253	530	40,725	58,242	11	939
— Neath - -	44	2,883	238	15,992	23,925	25	1,277
— Port Talbot -	3	207	58	3,164	4,299	3	173
Llanelly - - -	28	1,468	262	18,618	23,964	1	96
— Pembrey -	1	90	153	10,766	12,708	—	—
Milford and Pembroke	33	1,919	202	9,353	13,030	4	107
IN THE YEAR 1840:							
Gloucester - -	236	16,196	158	13,978	20,072	77	5,582
Bristol - - -	498	88,021	4	170	158	321	73,171
Ilfracombe - -	- -	- -	- -	- -	- -	2	116
Bideford - - -	4	195	- -	- -	- -	3	177
Newport - - -	175	15,501	1,283	115,733	147,606	170	12,130
Cardiff - - -	150	11,096	593	51,701	71,179	120	8,886
Swansea - - -	261	23,582	518	41,749	59,134	9	804
— Neath - -	62	3,892	235	17,300	24,157	12	700
— Port Talbot -	4	174	34	2,047	2,801	4	263
Llanelly - - -	34	1,872	442	32,543	44,363	3	120
— Pembrey -	1	94	161	11,323	14,312	—	—
Milford and Pembroke	31	1,887	150	7,786	10,801	4	201
IN THE YEAR 1841:							
Gloucester - -	238	16,886	78	6,881	9,596	99	5,736
Bristol - - -	460	78,428	- -	- -	- -	296	68,802
Ilfracombe - -	4	271	- -	- -	- -	2	106
Bideford - - -	3	284	- -	- -	- -	1	62
Newport - - -	262	21,654	1,444	128,270	174,535	161	12,727
Cardiff - - -	143	10,861	530	45,262	63,539	124	10,002
Swansea - - -	249	17,221	499	40,169	58,227	7	571
— Neath - -	55	3,861	278	18,627	27,420	8	459
— Port Talbot -	5	356	26	1,383	1,949	1	73
Llanelly - - -	38	2,301	363	26,026	29,714	3	322
— Pembrey -	- -	- -	94	7,866	8,826	—	—
Milford and Pembroke	22	1,517	136	6,446	9,431	4	281

Custom House, London,
7 May 1842.

John Covey,
Regʳ Genˡ of Shipping.

Appendix, No. 26.

RECEIPTS and EXPENDITURE of the Cork Harbour Commissioners, for the Year ending 1 August 1837.

	RECEIPTS.	£.	s.	d.	£.	s.	d.	£.	s.	d.
	Balance from last Year in Treasurer's hands - - -				-	-	-	40	16	4
	HARBOUR DUES.									
	Produce of Imports:									
	On Timber - - - - - - - -	247	2	–						
83,379 cwts.	Sugar, hbds., 4,306 at 7 *d.* - - - - -	125	11	10						
	—— tierces, 1,067 at 4 *d.* - - - - -	17	15	8						
	—— barrels, 483 at 1 ½ *d.* - - - - -	3	–	4						
	—— bags, 2,249 at ½ *d.* - - - - -	9	7	5						
15,660 cwts.	—— refined, hhds., 689, at 9 *d.* - - - -	25	16	9						
	—— ditto, tierces, 188 at 5 *d.* - - -	3	18	4						
709,191 lbs.	Tea, chests - 7,378 —— balf ditto, 1,065 } at 3 *d.* - - -	105	10	9						
	—— quarter ditto, 2,129 at 1 ½ *d.* - -	13	6	1						
210,850 gals.	Wine, pipes and butts, 1,160 at 1 *s.* - -	58	–	–						
	—— hhds., 1,178 at 6 *d.* - - - -	29	9	–						
	—— quarter casks, 1,069 at 3 *d.* - -	13	7	3						
	Bark, tons, 6,274 at 6 *d.* - - - -	156	17	–						
	Valonia, 624 at 6 *d.* - - - - -	15	12	–						
	Herrings, barrels, 19,822 at 1 *d.* - - -	82	11	10						
	—— balf ditto, 292 at ½ *d.* - - -	–	12	2						
12,472 cwts.	Tallow, casks, 1,559 at 4 *d.* - - -	25	19	8						
18,266 cwts.	Soap, boxes, 9,133 at 1 *d.* - - - -	38	1	1						
	Sundries, including all miscellaneous articles, &c.	1,037	9	3						
					2,009	8	5			
	Produce of Exports:									
149,220 cwts.	On Butter, firkins, 233,339 at ¼ *d.* - - -	243	1	3						
	—— kegs, 10,767 at ⅛ *d.* - - - -	5	12	2						
75,033 cwts.	Provisions, tierces, 16,517 at ¾ *d.* - -	51	12	4						
	—— barrels, 13,536 at ½ *d.* - - -	28	4	–						
	—— half, 3,607 at ¼ *d.* - - - -	3	15	2						
	—— firkins and kegs, 860 at ⅛ *d.* - -	–	2	–						
27,432 cwts.	Bacon, bales, 12,192 at ½ *d.* - - -	25	8	–						
64,010 cwts.	Wheat, barrels, 25,604 at ½ *d.* - - -	53	6	10						
338,946 cwts.	Oats, ditto, 193,683 at ¼ *d.* - - -	201	15	1						
54,036 cwts.	Barley, ditto, 27,018 at ¼ *d.* - - -	28	2	10						
241,985 cwts.	Flour, sacks and bags, 96,794 at ½ *d.* - -	201	13	1						
10,050 cwts.	Oatmeal, ditto, 4,020 at ⅜ *d.* - - -	6	5	7						
	Cows, 1,016 at 1 ½ *d.* - - - - -	6	7	–						
	Pigs, 68,284 at ½ *d.* - - - - -	142	5	2						
	Sbeep, 3,451 at ½ *d.* - - - - -	7	3	9						
	Eggs, boxes, 9,126 at 1 ½ *d.* - - -	57	–	9						
723,528 lbs.	Candles, ditto, 10,049 at ¼ *d.* - - -	9	8	9						
	Limestone, tons, 10,432 at 2 *d.* - - -	86	18	8						
	Gunpowder, barrels, 2,206 at 1 *d.* - -	9	3	10						
	—— half ditto, 7,289 at ½ *d.* - - -	15	3	8						
	—— quarter ditto, 17,780 at ½ *d.* - -	38	10	5						
	—— half quarter ditto, 1,668 at ⅛ *d.* - -	–	17	4						
	Sundries, including all miscellaneous articles -	185	6	1						
					1,407	3	9			
								3,416	12	2

RECEIPTS—*continued.*

	PRODUCE OF TONNAGE DUTY:	£.	s.	d.	£.	s.	d.	£.	s.	d.
223,934 tons	Tons, general and foreign, at 3 *d.*, 106,092	1,326	3	–						
	—— colliers, at 2 *d.*, 100,355	836	5	10						
	—— coasters, at 1 *d.*, 17,487	72	17	3						
* 27,368 tons	Tonnage duty received at Cove, ½ *d.*, 27,368	57	–	4						
					2,292	6	5			
	Duty on 2,867 tons of limestone				19	1	5			
	Entry and cocket tax				124	10	2			
	Arrears due by weigh-house for some years				721	14	2			
								3,157	12	2
	RECEIVED ON ACCOUNT OF BALLAST:									
	Limestone, 14,651 tons, at 1 *s.* 6 *d.*				1,098	16	6			
	Common, 3,055 ditto, at 1 *s.*				152	15	–			
	River clearance, 20,553 at 1 *s.*				1,027	13	–			
	Discharged from vessels, 411 at 2 *d.*				3	8	6			
								2,282	13	–
							£.	8,897	13	8
	Total Expenditure - - - £.							9,096	6	1
	Total Receipts - - - - £.							8,897	13	8
	Balance due Treasurer - - - £.							198	12	5

* Foreign vessels calling for orders.

From 1 August 1837 to 1 August 1838.

RECEIPTS.

HARBOUR DUES.

	PRODUCE OF IMPORTS:	£.	s.	d.	£.	s.	d.
	On Timber	258	18	7			
84,082 cwts.	Sugar, hhds., 4,100 at 7 *d.*	119	11	8			
	—— tierces, 778 at 4 *d.*	12	19	4			
	—— barrels, 766 at 1 ½ *d.*	4	15	9			
	—— bags, 4,819 at ½ *d.*	10	–	9			
	—— mats, 215 at ½ *d.*	–	9	–			
16,060 cwts.	—— refined, hhds., 588 at 9 *d.*	22	1	–			
	—— ditto, tierces, 430 at 5 *d.*	8	19	2			
197,967 lbs.	Tea, chests, 1,125 } —— half ditto, 1,650 } at 3 *d.*	34	13	9			
	—— quarter ditto, 1,627 at 1 ½ *d.*	10	2	6			
115,561 gals.	Wine, pipes and botts, 411 at 1 *d.*	20	11	–			
	—— hhds., 1,014 at 6 *d.*	25	7	–			
	—— quarter casks, 698 at 3 *d.*	8	14	6			
	—— cases, 69 } —— casks, 59 } at 4 *d.*	2	1	8			
	Bark, tons, 4,948 at 6 *d.*	123	14	–			
	Valonia, 682 at 6 *d.*	17	1	–			
	Herrings, barrels, 17,559 at 1 *d.*	73	3	3			
10,592 cwts.	Tallow, casks, 1,324 at 4 *d.*	22	1	4			
12,936 cwts.	Soap, boxes, 6,468 at 1 *d.*	26	19	–			
	Sundries, including all miscellaneous articles, &c.	1,135	6	7			
	Total - - - £.	1,937	10	10			
	Deduct overcharge to merchants, refunded	6	4	7			
					1,931	6	3

(*continued*)

Appendix, No. 26.

Receipts and Expenditure of Cork Harbour Commissioners.

RECEIPTS—*continued.*

		£.	s.	d.	£.	s.	d.
	PRODUCE OF EXPORTS:						
143,790 cwts.	On Butter, firkins, 222,468 at ¼ *d.* - - - -	231	14	9			
	—— kegs, 15,216 at ⅛ *d.* - - - -	7	18	6			
89,350 cwts.	Provisions, tierces, 17,078 at ¾ *d.* - -	53	7	4			
	—— hhds., 390 at 1 ½ *d.* - - - -	2	8	9			
	—— barrels, 18,313 at ½ *d.* - - -	38	3	–			
	—— half, 5,176 at ¼ *d.* - - - -	5	7	10			
	—— firkins and kegs, 738 at ⅛ *d.* - -	–	7	8			
33,302 cwts.	Bacon, bales, 14,801 at ½ *d.* - - -	30	16	9			
112,302 cwts.	Wheat, barrels, 44,921 at ½ *d.* - - -	93	11	8			
338,032 cwts.	Oats, ditto, 193,161 at ¼ *d.* - - -	201	4	2			
54,182 cwts.	Barley, ditto, 27,091 at ¼ *d.* - - -	28	4	5			
269,707 cwts.	Flour, sacks and bags, 107,883 at ½ *d.* -	216	8	5			
8,827 cwts.	Oatmeal, ditto, 3,531 at ⅜ *d.* - - -	5	10	–			
	Cows, 1,979 at 1 ½ *d.* - - - -	12	7	–			
	Pigs, 62,921 at ½ *d.* - - - - -	131	1	9			
	Sheep, 13,882 at ½ *d.* - - - -	28	18	5			
	Eggs, boxes, 15,184 at 1 ½ *d.* - - -	94	18	–			
706,320 lbs.	Candles, ditto, 9,810 at ¼ *d.* - - -	10	4	4			
	Limestone, tons, 25,400 at 2 *d.* - - -	211	13	4			
	Gunpowder, barrels, 6,238 at 1 *d.* - -	25	19	10			
	—— half, ditto, 3,734 at ½ *d.* - - -	7	15	7			
	—— quarter, ditto, 6,922 at ¼ *d.* - -	7	4	3			
	INCREASED RATES:						
	On Pigs, 4,864 at 1 ½ *d.* - - - - - -	30	8	–			
	Cows, 594 at 6 *d.* - - - - - -	14	17	–			
	Sheep, 3,235 at 1 *d.* - - - - -	13	9	7			
	Sundries, including all miscellaneous articles -	124	8	10			
					1,628	9	7
	PRODUCE OF TONNAGE DUTY:						
241,823 tons	On 123,137 tons, general and foreign, at 3 *d.* -	1,539	4	3			
	91,088 tons, colliers, at 2 *d.* - - -	759	1	4			
	27,598 tons, coasters, at 1 *d.* - - -	114	19	10			
35,130 tons	Tonnage duty received at Cove, at ½ *d.* per ton -	73	3	9			
	£.	2,486	9	2			
	Duty on 3,106 tons limestone - - -	21	6	6			
	Produce of entry and cocket tax - - -	1,224	4	–			
					2,629	19	8
	RECEIVED ON ACCOUNT OF BALLAST:						
	Limestone, 11,951 tons, at 1 *s.* 6 *d.* - - - -	896	6	6			
	Common, 3,113 ditto, at 1 *s.* - - - - -	155	13	–			
	River clearance, 15,916 at 1 *s.* - - -	795	16	–			
	Ballast discharged, 492 at 2 *d.* - - -	4	2	–			
	Overcharge to contractor - - - -	2	19	2			
	Limestone, 180 tons, at 1 *s.* 2 *d.* - - -	10	10	–			
					1,865	6	8
	Total Receipts - - - - £.				8,055	2	2
	Total Expenditure - - - £.				7,887	12	9
	Balance in Hands - - - £.				167	9	5

Appendix, No. 26.

Receipts and Expenditure of Cork Harbour Commissioners.

From 1 August 1838 to 1 August 1839.

RECEIPTS.

		£.	s.	d.	£.	s.	d.
	Balance from last Year - - -				167	9	5
	HARBOUR DUES.						
	PRODUCE OF IMPORTS:						
	On Timber - - - - - - - -	229	12	4			
80,813 cwts.	Sugar, hhds., 3,712 at 7 *d.* - - -	108	5	4			
	—— tierces, 667 at 4 *d.* - - - -	11	2	4			
	—— barrels, 532 at 1½ *d.* - - -	3	6	6			
	—— bags, 854 at ½ *d.* - - - -	1	15	7			
	—— mats, 1,787 at ½ *d* - - -	3	14	5			
12,260 cwts.	—— refined, hhds., 320 at 9 *d.* - -	12	–	–			
	—— ditto, tierces, 586 at 5 *d.* - -	12	4	2			
350,112 lbs.	Tea, chests, 3,502 at 3 *d.* - - -	43	15	6			
	—— half do., 1,084 at 3 *d.* - - -	13	11	–			
	—— quarter do., 496 at 1½ *d.* - -	3	2	–			
161,239 gals.	Wine, pipes and butts, 713 at 1 *s.* - -	35	13	–			
	—— hhds., 1,314 at 6 *d.* - - -	32	17	–			
	—— quarter casks, 646 at 3 *d.* - -	8	1	6			
	—— cases, 47 } —— casks, 60 } at 4 *d.* - - - -	1	15	8			
	Bark, tons, 5,982 at 6 *d.* - - -	149	11	–			
	Valonia, 605 at 6 *d.* - - - -	15	2	6			
	Herrings, barrels, 16,080 at 1 *d.* - -	67	–	–			
10,396 cwts.	Tallow, casks, 1,295 at 4 *d.* - - -	21	11	8			
11,626 cwts.	Soap, boxes, 5,813 at 1 *d.* - - -	24	4	5			
	Gunpowder, barrels, 1,301 at 1 *d.* - -	5	15	11			
	Sundries, including all miscellaneous articles, &c.	1,517	3	1			
					2,321	4	11
	PRODUCE OF EXPORTS:						
189,920 cwts.	On Butter, firkins, 295,080 at ¼ *d.* - -	307	7	6			
	—— kegs, 17,588 at ⅛ *d.* - - -	9	3	2			
87,557 cwts.	Provisions, tierces, 16,454 at ¾ *d.* - -	51	8	4			
	—— barrels, 19,258 at ½ *d.* - - -	40	2	5			
	—— half, 6,896 at ¼ *d.* - - -	7	3	8			
28,474 cwts.	Bacon, bales, 12,655 at ½ *d.* - - -	26	7	3			
23,835 cwts.	Wheat, barrels, 9,534 at ½ *d.* - - -	19	17	3			
405,247 cwts.	Oats, ditto, 231,570 at ¼ *d.* - - -	241	4	4			
24,016 cwts.	Barley, ditto, 12,008 at ¼ *d.* - - -	12	10	2			
189,722 cwts.	Flour, sacks and bags, 75,889 at ½ *d.* -	158	2	–			
5,155 cwts.	Oatmeal, ditto, 2,062 at ⅜ *d.* - -	3	4	5			
	Cows, 7,163 at 6 *d.* - - - - -	179	1	6			
	Pigs, 68,656 at 1½ *d.* - - - -	429	2	–			
	Sheep, 35,168 at 1 *d.* - - - -	146	10	8			
	Eggs, boxes, 7,966 at 1½ *d.* - - -	49	15	9			
1,134,360 lbs.	Candles, ditto, 16,255 at ¼ *d.* - - -	16	18	8			
	Limestone, tons, 25,940 at 2 *d.* - -	216	3	4			
	Gunpowder, barrels, 14,341 at 1 *d.* - -	59	15	1			
	—— half ditto, 2,691 at ½ *d.* - - -	5	12	1			
	—— quarter ditto, 1,926 at ¼ *d.* - -	2	–	1			
2,876 cwts.	Soap, boxes, 1,438 at ¼ *d.* - - -	1	9	11			
	Sundries, including all miscellaneous articles, &c.	85	3	11			
					2,068	3	6
	PRODUCE OF TONNAGE DUTY:						
244,091 tons.	On 137,846 tons, general and foreign, at 3 *d.*	1,723	1	6			
	85,930 tons, colliers, at 2 *d.* - - -	716	1	8			
	20,315 tons, coasters, at 1 *d.* - - -	84	12	11			
		£. 2,523	16	1			
61,104 tons	Tonnage duty received at Cove, at ½ *d.* per ton	127	6	6			
	Duty on 1,772 tons limestone taken by coasters	12	5	2			
	Produce of entry and cocket tax - - - -	120	1	–			
					2,783	8	9
	RECEIVED ON ACCOUNT OF BALLAST:						
	Limestone, 16,494 tons, at 1 *s.* 6 *d.* per ton -	1,237	1	–			
	Common, 1,797 tons, at 1 *s.* per ton - -	89	17	–			
	River clearance, 17,455 tons, at 1 *s.* per ton -	872	15	–			
	—— 260 to gas works, at 6 *d.* - - -	6	10	–			
	Ballast discharged, 302 tons, at 2 *d.* - -	2	10	4			
					2,208	13	4
	Total Receipts - - - - £.				9,548	19	11
	Total Expenditure - - - £.				9,429	17	8
	Balance in Hands - - - - £.				119	2	3

(continued)

Appendix, No. 26.

Receipts and Expenditure of Cork Harbour Commissioners.

From 1 August 1839 to 1 August 1840.

RECEIPTS.

		£.	s.	d.	£.	s.	d.
	Balance from last Year - - -				119	2	3
	HARBOUR DUES.						
	PRODUCE OF IMPORTS:						
	On Timber - - - - - - -	240	19	5			
48,841 cwts.	Sugar, hhds., 2,708 at 7 d. - - - -	78	19	8			
	—— tierces, 304 at 4 d. - - - -	5	1	4			
	—— barrels, 515 at 1½ d. - - - -	3	4	4			
	—— bags, 768 at ½ d. - - - - -	1	12	–			
25,730 cwts.	—— refined, hhds., 1,007 at 9 d. - - -	37	15	3			
	—— ditto, tierces, 559 at 5 d. - - -	11	12	11			
140,091 lbs.	Tea, chests, 1,244 at 3 d. - - - -	15	11	–			
	—— half ditto, 745 at 3 d. - - - -	9	6	3			
	—— quarter ditto, 205 at 1½ d. - - -	1	5	7			
159,102 gals.	Wine, pipes and butts, 684 at 1 s. - - -	34	4	–			
	—— hhds., 949 at 6 d. - - - -	23	14	6			
	—— quarter casks, 1,399 at 3 d. - - -	17	9	9			
	—— cases, 87 } —— casks, 47 } at 4 d. - - - -	2	4	8			
	Bark, tons, 4,703 at 6 d. - - - -	117	11	6			
	Valonia, 483 at 6 d. - - - - -	12	1	6			
	Herrings, barrels, 12,524 at 1 d. - - -	52	3	8			
8,400 cwts.	Tallow, casks, 1,050 at 4 d. - - - -	17	10	–			
6,562 cwts.	Soap, boxes, 3,281 at 1 d. - - - -	13	13	5			
	Gunpowder, barrels, 1,020 at 1 d. - - -	4	5	–			
	Sundries, including all miscellaneous articles	1,755	14	9			
					2,456	–	6
	PRODUCE OF EXPORTS:						
136,100 cwts.	On Butter, firkins, 214,437 at ¼ d. - - -	223	7	5			
	—— kegs, 6,648 at ⅛ d. - - - -	3	9	3			
88,071 cwts.	Provisions, tierces 13,252 at ¾ d. - -	41	8	3			
	—— barrels, 25,475 at ½ d. - - -	53	1	5			
	—— half, 5,282 at ¼ d. - - - -	5	10	–			
34,098 cwts.	Bacon, bales, 15,155 at ½ d. - - -	31	11	6			
14,497 cwts.	Wheat, barrels, 5,799 at ½ d. - - -	12	1	7			
318,582 cwts.	Oats, ditto, 182,047 at ¼ d. - - -	189	12	4			
12,826 cwts.	Barley, ditto, 6,413 at ¼ d. - - -	6	13	7			
115,933 cwts.	Flour, sacks and bags, 46,373 at ½ d. - -	96	12	2			
11,770 cwts.	Oatmeal, ditto, 4,708 at ⅜ d. - - -	7	7	1			
	Cows, 10,658 at 6 d. - - - -	266	6	6			
	Pigs, 36,726 at 1½ d. - - - -	229	10	9			
	Sheep, 18,658 at 1 d. - - - -	77	14	10			
	Eggs, boxes, 7,679 at 1½ d. - - -	47	19	10			
937,224 lbs.	Candles, ditto, 13,017 at ¼ d. - - -	13	11	2			
	Limestone, tons, 28,823 at 2 d. - -	240	3	10			
	Gunpowder, barrels, 10,517 at 1 d. - -	43	16	5			
	—— half ditto, 5,214 at ½ d. - - -	10	17	3			
	—— quarter ditto, 3,160 at ¼ d. - -	3	5	10			
27,978 cwts.	Soap, boxes, 13,989 at ¼ d. - - -	14	11	5			
	Calves, 3,099 at 2 d. - - - -	25	16	6			
	Sundries, including all miscellaneous articles -	373	14	7			
					2,018	3	4
	PRODUCE OF TONNAGE DUTY:						
250,533 tons	On 135,262 tons, general and foreign, at 3 d. -	1,690	16	6			
	96,200 tons, colliers, at 2 d. - - -	801	13	4			
	19,071 tons, coasters, at 1 d. - - -	79	9	3			
	£.	2,571	18	1			
85,358 tons	Tonnage duty received at Cove, at ½ d. per ton -	177	16	7			
	Duty on limestone taken by coasters - -	6	5	5			
	Produce of entry and cocket tax - - -	116	–	–			
					2,872	–	1
	RECEIVED ON ACCOUNT OF BALLAST:						
	Limestone, 11,599 tons, at 1 s. 6 d. - - -	869	18	6			
	Common, 4,264 tons, at 1 s. - - - -	213	4	–			
	River clearance, 16,323 tons, at 1 s. - -	816	3	–			
	Discharged, 210 tons, at 2 d. - - - -	1	15	–			
					1,901	–	6
	Total Receipts - - - - £.				9,366	6	8
	Total Expenditure - - - £.				10,024	19	–
	Balance due Treasurer - - - £.				658	12	4

From 1 August 1840 to 1 August 1841.

Appendix, No. 26.

Receipts and Expenditure of Cork Harbour Commissioners.

RECEIPTS.

HARBOUR DUES.

		£.	s.	d.	£.	s.	d.
	PRODUCE OF IMPORTS:						
	On Timber	287	13	1			
71,896 cwts.	Sugar, hhds., 3,506 at 7 d.	102	5	2			
	—— tierces, 546 at 4 d.	9	2	–			
	—— barrels, 604 at 1 ½ d.	3	15	6			
	—— bags, 1,304 at ½ d.	2	14	4			
18,010 cwts.	—— refined, hhds., 638 at 9 d.	23	18	6			
	—— ditto, tierces, 525 at 5 d.	10	18	9			
223,125 lbs.	Tea, chests, 1,891 at 3 d.	23	12	9			
	—— half ditto, 1,159 at 3 d.	14	9	9			
	—— quarter ditto, 743 at 1 ½ d.	4	12	11			
155,718 gals.	Wine, pipes and butts, 602 at 1 s.	30	2	–			
	—— hhds., 1,092 at 6 d.	27	6	–			
	—— quarter casks, 914 at 3 d.	11	8	6			
	—— cases, 102 —— casks, 65 } at 4 d.	2	15	8			
	Bark, tons, 5,144 at 6 d.	128	12	–			
	Valonia, 590 at 6 d.	14	15	–			
	Herrings, barrels, 15,387 at 1 d.	64	2	3			
9,784 cwts.	Tallow, casks, 1,223 at 4 d.	20	7	8			
11,574 cwts.	Soap, boxes, 5,787 at 1 d.	21	12	3			
	Gunpowder, barrels, 1,269 at 1 d.	5	5	9			
	Sundries, including all miscellaneous articles	1,897	1	5			
					2,418	18	2
	PRODUCE OF EXPORTS:						
156,920 cwts.	On Butter, firkins, 243,995 at ¼ d.	254	3	3			
	—— kegs, 13,150 at ⅛ d.	6	16	11			
98,071 cwts.	Provisions, tierces, 15,261 at ¾ d.	47	13	10			
	—— barrels, 27,364 at ½ d.	57	–	2			
	—— half ditto, 6,392 at ¼ d.	6	13	2			
32,321 cwts.	Bacon, bales, 14,365 at ½ d.	29	18	6			
22,156 cwts.	Wheat, barrels, 8,862 at ½ d.	18	9	3			
344,646 cwts.	Oats, ditto, 196,941 at ¼ d.	205	3	–			
17,408 cwts.	Barley, ditto, 8,704 at ¼ d.	9	1	4			
150,738 cwts.	Flour, sacks and bags, 60,295 at ½ d.	125	12	3			
13,588 cwts.	Oatmeal, ditto, 5,433 at ⅜ d.	8	9	11			
	Cows, 10,543 at 6 d.	263	11	6			
	Pigs, 41,205 at 1 ½ d.	256	5	8			
	Sheep, 23,567 at 1 d.	98	3	11			
	Eggs, boxes, 7,850 at 1 ½ d.	49	1	3			
1,193,544 lbs.	Candles, do., 15,327 at ¼ d.	15	19	4			
	Limestone, tons, 30,046 at 2 d.	250	7	8			
	Gunpowder, barrels, 12,644 at 1 d.	52	13	8			
	—— half ditto, 6,321 at ½ d.	13	3	5			
	—— quarter ditto, 2,740 at ¼ d.	2	17	1			
30,014 cwts.	Soap, boxes, 15,007 at ¼ d.	15	2	8			
	Calves, 3,975 at 2 d.	33	2	6			
	Sundries, including all miscellaneous articles	181	7	8			
					2,001	7	11
	PRODUCE OF TONNAGE DUTY:						
236,682 tons	On 126,554 tons, general and foreign, at 3 d.	1,581	18	6			
	95,268 tons, colliers, at 2 d.	793	9	8			
	14,860 tons, coasters, at 1 d.	61	18	4			
	£.	2,437	6	6			
86,188 tons	Tonnage duty received at Cove, at ½ d. per ton	181	12	10			
	Duty on limestone taken by coasters	12	1	4			
	Produce of entry and cocket tax	116	–	11			
					2,747	1	7
	RECEIVED ON ACCOUNT OF BALLAST:						
	Limestone, 8,675 tons, at 1 s. 6 d. per ton	650	12	6			
	Common, 1,695 tons, at 1 s. per ton	84	15	–			
	River clearance, 13,026 tons, at 1 s. per ton	651	6	–			
	Ballast discharged, 591 tons, at 2d. per ton	4	18	6			
					1,391	12	–
	Total Receipts £.				8,558	19	8
	Total Expenditure £.				8,274	8	11
	Balance in Hands of Treasurer £.				284	10	9

Appendix, No. 27.

Appendix, No. 27.

Contracts for Mileage.

RETURN of the CONTRACTS for MILEAGE for the last Seven Years, separating each Year, for carrying the Mails by Land from *London* to *Hobb's Point*, whether by *Bristol* or *Gloucester*.

For the Year ended 5 July 1836:

	Terms of Contract.		
	d.		
London to Bristol - - -	2	per single mile,	from 6 July 1835 to 5 Jan. 1836.
	$1\frac{9}{16}$	- - ditto -	from 6 Jan. to 5 July 1836.
Bristol to Carmarthen - -	4	- - ditto -	from 6 July 1835 to 5 Jan. 1836.
	$3\frac{9}{16}$	- - ditto -	from 6 Jan. to 5 July 1836.
London to Gloucester - -	$2\frac{1}{2}$	- - ditto -	from 6 July 1835 to 5 Jan. 1836.
	$2\frac{1}{16}$	- - ditto -	from 6 Jan. to 5 July 1836.
Gloucester to Carmarthen - -	$2\frac{1}{2}$	- - ditto -	from 6 July 1835 to 5 Jan. 1836.
	$2\frac{1}{16}$	- - ditto -	from 6 Jan. to 5 July 1836.
Carmarthen to Hobb's Point -	$2\frac{1}{8}$	- - ditto -	from 6 July 1835 to 5 Jan. 1836.
	$2\frac{1}{10}$	- - ditto -	from 6 Jan. to 5 July 1836.

For the Year ended 5 July 1837:

	d.		
London to Bristol - - - -	$1\frac{9}{16}$	per single mile.	
Bristol to Carmarthen - - -	$3\frac{9}{16}$	- - ditto.	
London to Gloucester - - -	$2\frac{1}{16}$	- - ditto.	
Gloucester to Carmarthen - - -	$2\frac{1}{16}$	- - ditto.	
Carmarthen to Hobb's Point -	$2\frac{1}{10}$	- - ditto -	from 6 July 1836 to 10 Oct. 1836.
	$5\frac{9}{16}$	- - ditto -	from 11 Oct. 1836 to 5 July 1837.

For the Year ended 5 July 1838:

	d.
London to Bristol - - - -	$1\frac{9}{16}$ per single mile.
Bristol to Carmarthen - - -	$3\frac{9}{16}$ - - ditto.
London to Gloucester - - -	$2\frac{1}{16}$ - - ditto.
Gloucester to Carmarthen - - -	$2\frac{1}{16}$ - - ditto.
Carmarthen to Hobb's Point - -	$5\frac{9}{16}$ - - ditto.

For the Year ended 5 July 1839:

	d.		
London to Bristol - - - -	$1\frac{9}{16}$	per single mile.	
Bristol to Carmarthen - - -	$3\frac{9}{16}$	- - ditto -	from 6 July 1838 to 5 April 1839.
	$5\frac{1}{16}$	- - ditto -	from 6 April to 5 July 1839.
London to Gloucester - - -	$2\frac{1}{16}$	- - ditto.	
Gloucester to Carmarthen - - -	$2\frac{1}{16}$	- - ditto.	
Carmarthen to Hobb's Point - -	$5\frac{9}{16}$	- - ditto.	

For the Year ended 5 July 1840:

	d.		
London to Bristol - - - -	$1\frac{9}{16}$	per single mile,	to 2 Feb. 1840.
*Twyford to Bristol - - - -	$2\frac{1}{16}$	- - ditto -	from 3 Feb. to 22 June 1840.
*Reading to Bristol - - - -	$2\frac{1}{16}$	- - ditto -	from 23 June to 5 July 1840.
Bristol to Carmarthen - - -	$5\frac{1}{16}$	- - ditto.	
London to Gloucester - - -	$2\frac{1}{16}$	- - ditto -	from 6 July 1839 to 2 Feb. 1840.
*Twyford to Gloucester - - -	$2\frac{1}{16}$	- - ditto -	from 3 Feb. to 22 June 1840.
*Steventon to Gloucester - - -	$2\frac{1}{16}$	- - ditto -	from 23 June to 5 July 1840.
Gloucester to Carmarthen - -	$2\frac{1}{16}$	- - ditto -	from 6 July 1839 to 5 April 1840.
	$4\frac{9}{16}$	- - ditto -	from 6 April to 5 July 1840.
Carmarthen to Hobb's Point - -	$5\frac{9}{16}$	- - ditto.	

For

Appendix, No. 27.

Contracts for Mileage.

For the Year ended 5 July 1841:

	Terms of Contract.
	d.
*Reading to Bristol - - - -	$2\frac{1}{16}$ per single mile, from 6 July 1840 to 5 Feb. 1841.
*Hay Lane to Bristol - - -	$4\frac{1}{16}$ - - ditto - from 6 Feb. to 7 March 1841.
	$5\frac{9}{16}$ - - ditto - from 8 March to 15 June 1841.
*Chippenham to Bristol - - -	$5\frac{9}{16}$ - - ditto - from 16 June to 5 July 1841.
Bristol to Carmarthen - - -	$5\frac{1}{16}$ - - ditto.
*Steventon to Gloucester - - -	$2\frac{1}{16}$ - - ditto.
Gloucester to Carmarthen - -	$4\frac{9}{16}$ - - ditto.
Carmarthen to Hobb's Point - - -	$5\frac{9}{16}$ - - ditto.

For the Year ended 5 July 1842:

	d.
*Chippenham to Bristol - - -	$5\frac{9}{16}$ per single mile, from 6 July to 12 July 1841.
Bristol to Carmarthen - - -	$5\frac{1}{16}$ - - ditto - from 6 July 1841 to 5 April 1842.
	$7\frac{1}{16}$ - - ditto - from 6 April to 5 July 1842.
*Steventon to Gloucester - - -	$2\frac{1}{16}$ - - ditto - from 6 July to 15 July 1841.
*Cirencester to Gloucester - -	$5\frac{9}{16}$ - - ditto - between Cirencester & Cheltenham, and
	$4\frac{1}{16}$ from Cheltenham to Gloucester, from 16 July 1841 to 5 July 1842.
Gloucester to Carmarthen - -	$4\frac{9}{16}$ per single mile.
Carmarthen to Hobb's Point - -	$5\frac{9}{16}$ - - ditto.

The mail was conveyed from London to the places indicated thus (*), and for the periods stated, by the Great Western Railway, by which line also, since the 12th July 1841, the communication has been entirely maintained between London and Bristol. During the period from the 3d of February 1840, when this railway was first used for the conveyance of the mails, to the 29th of July 1841, when the line was opened throughout to Bridgewater, the services rendered by this company were charged for at the rate of about $10\frac{7}{8}$ *d.* per single mile; but as this payment included the conveyance of other mails besides those for Bristol and Gloucester, it is impossible to state exactly the terms on which the two latter were conveyed. Since the 29th of July 1841, no payment whatever has been made by the Post-office to this company. The alteration which then took place in the services required was so extensive, that the question of the price to be paid has been referred to arbitrators for decision, and is as yet undetermined.

16 July 1842.

Geo. Stow.

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Elevation View of the

LIGHT HOUSE.

AS ERECTED ON SEVEN (MITCHELL'S) SCREW PILES,

at the Entrance of the

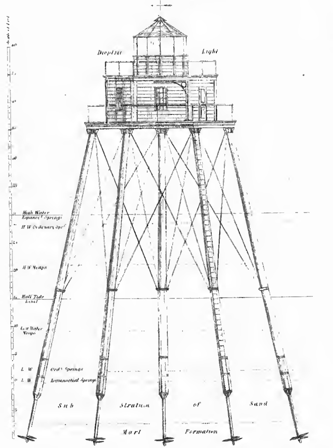
SEA-REACH OF WYRE,

leading into Port Fleetwood, 1840.

BY **CAPTN DENHAM**, R.N. F.R.S.

Consulting Marine Surveyor.

Referred to in Evidence
Answer to Question 4258, Page 183



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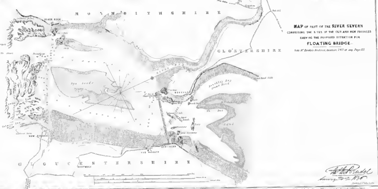


MAP OF PART OF THE RIVER SEVERN

COMPRISING THE SITES OF THE OLD AND NEW PASSAGES
SHEWING THE PROPOSED SITUATION FOR

FLOATING BRIDGE.

Vide Mr Rendels Evidence, Question 2977 et seq. Page 153.

J. M. Rendel
Surveyed 1836

Ordered, by the House of Commons to be Printed 17th June 1842.

PLAN
of
HOLYHEAD HARBOUR,
SURVEYED BY LIEUT SHERINGHAM R.N.
1837

Referred to in Mr Cubitt's Evidence
of 29th May 1842 page 100

OUTER PIER

Cubick yards 255,744
at 4p Cubick yard
£ 51 150

INNER PIER

Cubick yards 400 000
at 2p Cubick yard
£ 20,000

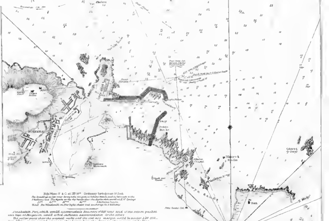
Add the two 20,000
51,150
£ 71,150

Average 30 feet water
length 1100 feet

INNER PIER

Cubick yards 88 480
great part of it dry and
only 3 feet water average,
the last 3 only 9 feet water

Allow 27 feet from L. water
to top of Pier



High Water F. & C. at XIh 10m Ordinary Springs rise 16 feet.

A makeshift Port, which would accommodate Steamers of 600 tons and, if the return packet were kept at Kingstown, would afford sufficient accommodation for the other.
The yellow parts show the proposed works and the cost as I imagine would be under £80 000 — but Mr Stevenson would estimate this better from the data in the margin of the Plan

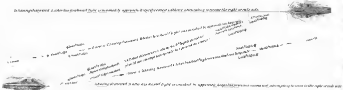
J. Basire, Lithog.

Ordered by the House of Commons to be Printed, 27th June 1842.

James & Luke J. Hansard, Printers

DIAGRAM REFERRED TO IN CAPTN DENHAM'S EVIDENCE vide Answer to Question 5470 pages 197 & 8

Diagram illustrative of Captain Denham's opinion that three uncoloured lights disposed thus One at Masthead and one at the outer part of each Paddle box would undoubtedly indicate the course of approaching Steamers and supposing the Starboard side of each to be the general rule adopted that the criterion for its being too late to observe the rule can be indicated by masking the Starboard light at a given angle with Keel say 17 degrees


B having discovered A after his Starboard light is masked by approach keeps the course without attempting to recover the right or rule side
Course of B having discovered A before his Starbd light was masked by approach can keep rule
A & B first discover each other, Starbd lights masked should not attempt to keep rule but proceed on course
Course of A having discovered B before his Starbd light was masked can keep rule
A having discovered B after his Starbd light is masked by approach keeps his previous course not attempting to cross to the right or rule side
Masthd Light
Starbd Light
Larbd Light
Figure of 3 lights formed
A
B

H. M. Dalton

CHART,

REFERENCE.

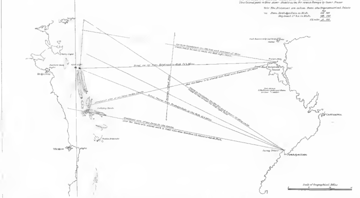
The coloured parts in Black shew Shoals as in [illegible]

The Coloured parts in Red shew Shoals as in Mr. [illegible] Chart

The Coloured parts in Blue shew Shoals as in the recent Survey by [illegible]

Note. The Distances are taken from the Trigonometrical Points

viz.	From Porth Dyn Llaen to Kish	[illegible]
	Holyhead Do. to Kish	[illegible]
		[illegible]



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MAP

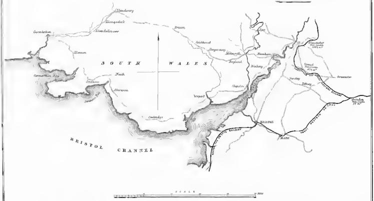
Shewing the Position of the

PROPOSED BRIDGE AND WELSH ROADS,

With Reference to the

GREAT WESTERN RAILWAY

Referred to in Mr. Rendel's Report on the Survey of the Severn at Newnham



J. Basire lith.

375 Ordered by the House of Commons to be Printed 27th June 1842.

James & Luke J. Hansard Printers.

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III. *Passage to and from different Places:*

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2. Cardiff.
3. Cork.
4. Waterford.

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Distance from Brean Down to Barry Island by sea; any steamer could make the passage in an hour and a half, *Allen* 4279–4286. 4290, 4290*——Great convenience to the Welsh people of getting to London and the West of England by that route, *Ib.* 4287–4289——The passage between Barry Island and Brean Down could be performed as regularly as the Old Passage on the Severn, *Ib.* 4303–4306——For Cardiff and Newport, and places to the eastward, there must be a branch mail from Barry, *Ib.* 4307——Mail-packets between Barry and Brean Down would pay; there would be much traffic; convenience of that route, *Ib.* 4308–4314.

2. Cardiff:

Cardiff would be the line for a communication from Brean Down, but Sully Island would be better, *Claxton* 174——The communication from Brean Down to Cardiff is not an easy one; it has been complained of; the Taffe Vale Railroad talked of effecting a line from Cardiff to Uphill further up the river, *Barber* 1518. 1520——A proper steamer would take from one hour and a quarter to an hour and a half to go from Cardiff to Brean Down, *Edwards* 2027——A proper description of steam-packet would take an hour crossing from Cardiff to Brean Down, *Denham* 2240——There is no weather in which an efficient steamer could not get across, there being safe points of arrival and departure on each side, *Ib.* 2241, 2242——Witness, as an officer of the Post-office, would not recommend the substitution of a passage such as that between Cardiff and Brean Down for a considerable portion of land journey; witness prefers land journey to sea considerably, *Stow* 2452, 2453.

3. Cork:

Average estimated rate of iron steam-boats of about 500 or 600 tons, and engines of 250 horse power between Brean Down and Cork, *White* 1201, 1202——The average length of the passage from Brean Down to Cork would be 24 or 25 hours, and under favourable circumstances, about 20 hours, *Edwards* 1965, 1966.

Brean Down—continued.

III. *Passage to and from different Places*—continued.

4. Waterford:

Good steamers could make the voyage regularly between Brean Down and Waterford, but not so regularly as between Liverpool and Kingstown, as the water is less smooth, *Evans* 244, 245——Comparative distance of Brean Down and Milford from Waterford, and difficulties of each voyage, prevailing winds, heavy sea, &c., *Ib.* 246–254——A mail steamer of 600 tons, and 250 horse power, would average 18 or 19 hours between Brean Down and Waterford, *Burgess* 480–483——Four more hours to Cork in fine weather, and six or eight in foul weather, *Ib.* 484–486——Time that would be occupied in going from Brean Down to Waterford, and from London to Brean Down, by railway, *Parsons* 1142–1144——Decided advantage of the proposed line of steamers from Portishead or Brean Down to Waterford, calling off Milford for the mails, *Ib.* 1159, 1160. 1167–1171——Average difference of the voyage as between Bristol and Cork and Waterford, taking Brean Down as the point of departure, *White* 1233——Passengers alone would not defray the expenses of a line of steam-packets between Brean Down and Waterford merely to carry them and the mail; the expense of the voyage would be greater than from Milford, *Moriarty* 1854–1857.

Time that would be lost by taking Dale Bay in going from Brean Down to Waterford; calling at Hobson Pill would make an additional hour in and out, *Edwards* 1945–1947——Average passage of a steam-boat of 500 tons and 250 horse power from Brean Down to Waterford, *Ib.* 1956. 1967, 1968; *Stow* 2497, 2498——Margin that should be allowed for irregularities upon the voyage; margin allowed between Liverpool and Dublin, *Stow* 2510–2516; *Willcox* 2803; *Maberly* 3111–3114. 3120–3124; *Hammond* 4079, 4080. 4099——There would not be many passages during the year that would average less than 11 miles an hour, *Willcox* 2819–2821——A margin of three hours in a passage of 180 nautical miles would enable it to be made with certainty, *Russell* 2906——The Post-office would require three boats to perform that duty, making one passage each way every day, *Ib.* 2907–2910——Probable cost of those vessels; description of vessel suited for the passage between the Bristol Channel and Ireland, *Ib.* 2911–2915.

Districts that would derive benefit from the route by Brean Down and Waterford; statement showing the small amount of correspondence; there would be no adequate advantage for an expensive packet station, *Maberly* 3097–3099——The people in South Wales would suffer inconvenience in going to Brean Down, and thence to Waterford, *Ib.* 3106, 3107——Navigation from Brean Down to Waterford, distance, length of passage, tides on arrival, &c., *Denham* 3531–3539——Advantage of the route by Brean Down, *J. Williams* 3871——With steamers of 250 horse power and 500 tons, the passage might always be made from Brean Down except in fogs and thick weather, *Rees* 3910–3913——With lights on the Culver Sands, Rowse Point and the Scar-weather, and powerful steamers, the passsge from Brean Down might be well made; rate of speed; winds, tides, &c., *Ib.* 3921–3952——Calculation of the time it would take for letters to reach Waterford by way of Brean Down, Barry Island, Cowbridge, and Hobb's Point, *Allen* 4291–4299——Route of the Welsh letters, supposing the mail to start direct from Brean Down to Waterford, *Ib.* 4300–4302.

See also *Axe River. Bristol Channel. Bristol and Cork. Bristol and Milford. Bristol and Waterford. Cardiff and Uphill. Dale Bay*, 1, 2. *Floating Breakwaters. Hobb's Point and Waterford. London and Brean Down. London and Cork. London and Waterford. Milford*, II. III. *Mumbles*, The. *Old Passage Ferry*, 3. *Portishead. Southern Line of Communication with Ireland. Sully Island. Swansea and Waterford.*

Bridgewater or Burnham Lights. Paragraph from witness's "Sailing Directions," published by the Board of Admiralty in 1839, respecting the Bridgewater or Burnham lights, *Denham* 2059.

Bristol. If the Northern letters were combined with the others, more time would be lost by way of Bristol direct to Ireland than by the present route through South Wales, *Stow* 364–370——No time would be gained if the Northern correspondence were brought into Bristol, *Ib.* 371–377——Bristol would be a very central place as the depôt for dispatching all the Irish letters from the North from London and from the South and South-west, *Ib.* 406–408——It would not be central for collecting letters from the Pembroke line, *Ib.* 409——It would be better for the Bristol packets to fit the London morning mail than to start in the middle of the night, *Ib.* 419–423——District of country that would derive convenience from the Bristol line, *Ib.* 425, 426.

Table showing the total amount of imports to Bristol from Ireland from 5 April 1839 to 5 April 1840, *Ev. p.* 44——Present hours of arrival and departure of the London mail at Bristol, *W. Smith* 925–931——Bristol has a considerable trade with South Wales, *Ib.* 937——Supposing the Irish letters to go by steamers direct to Bristol or Brean Down, the mails which now cross the Passage must still be kept on for the circulation of letters in that part of the country, *H. P. Williams* 1400——In summer the favourite mode

Bristol—continued.

mode of communication between the West of England and London and the South of Ireland is *viâ* Bristol, *Moriarty* 1735.

See also *Liverpool*, 2. *London and Dublin.* *Milford.* I. II. *Southern Line of Communication with Ireland.* *Swansea.*

BRISTOL CHANNEL:

1. *Generally.*
2. *Its Facilities for Steam Navigation.*
3. *Its present State as regards Lights and Buoys, &c.; Improvements needed.*
4. *Papers laid before the Committee.*

1. *Generally:*

Wrecks in the Bristol and Irish Channels, of steamers, within the last 12 years, *Claxton* 25——Reasons why the commissioners of inquiry into different ports did not examine as to the Bristol Channel, *Ib.* 224–226——The celerity of the communication with the South of Ireland would be much increased if a good line of packets were established from the Bristol Channel, *Stow* 412, 413——An increase of passengers and business would take place if a daily line of packets were established from some point in the Bristol Channel to some point in the South of Ireland, *W. Smith* 879. 888, 889.

Comparative merits of Bristol, Portishead, or Posset Point, and Brean Down, as starting places for steam communication with Ireland; difficulties in the navigation of the Bristol Channel, *Moriarty* 1772–1780, 1786–1806——Extent of the survey of the Bristol Channel completed in the autumn of 1832, *Denham* 2048, 2049——Points to which Captain Beechey's attention was recently directed, *Drew* 4210, 4211.

2. *Its Facilities for Steam Navigation:*

Nothing can be much better than the Bristol Channel for steam navigation, *Claxton* 4, 5——The course is very nearly straight from the sea up to Portishead; there are no difficulties up to there, *Ib.* 6, 7——In the Bristol river there are decided difficulties, *Ib.* 7——Steamers from Cork make Lundy, and with wind from the northward or westward would hug the Welsh coast for the sake of smoother water, *Ib.* 18, 19——Many steamers pass the Holms, on which there is a lighthouse, without making any other land, *Ib.* 20, 21——If at the Holms a steamer meets a flood-tide and a gale of wind, she drops her anchor till the tide is spent; a better class of steamers would go on, *Ib.* 71–76——In Kingroad, steamers can always be approached by small steam-tugs, but not by open boats, *Ib.* 111–113——There is no sea in the Bristol Channel which a good steamer of sufficient power need ever mind, *Ib.* 151–156——The tide in the Bristol Channel would not offer much obstruction, as it would as frequently be favourable as adverse, *Evans* 255–259——From the mouth of the Channel to any part of Ireland, the same vessel that would average 10 miles an hour from Holyhead to Kingstown would not average more than eight, *Ib.* 282–288——This calculation includes deviations and detention by contrary wind and heavy gales, *Ib.* 289–291——The greater the length of the voyage, the more irregular will it be, *Ib.* 292–294.

Witness has never been delayed by weather in going up the Bristol Channel; he has never put into a port, *Burgess* 452, 453——Rate of the tides at different parts of the Channel, *Ib.* 511–523; *Claxton*, 704–709——Greater power is required between Bristol and Milford, than between Milford and Waterford, and the difficulties of the navigation are greater, *Rees* 3971–3979——The Irish steamers have to slow their engines for want of water in the Avon, but not on account of the navigation of the Bristol Channel, *Drew* 4190–4194——Vessels have been driven up to Kingroad in the night, without knowing where they were, *Ib.* 4201–4204——There is no great difficulty in the navigation of the Bristol Channel, nor are fogs more prevalent than elsewhere, *Ib.* 4212–4214, 4217–4219.

Average time occupied in running up to Portishead against the tide, *Burgess* 524–530——Depth of water in the Channel, *Ib.* 588, 589——Landing-places will be required on each side the Channel, to enable steam-boats to start at all times of the tide, *Ib.* 599–602——If the packets were to start from Kingroad immediately on the arrival of the mail from London, they would have to start in the dead of the night at all times of the tide, *W. Smith* 924–930——There would be no difficulty in the navigation of the Bristol Channel in the dead of the night and at low-water, *Ib.* 934——Usual practice of the Bristol packets in making their passage up and down the Channel, *Ib.* 935; *Edwards* 1935.

Difficulties and dangers in the navigation of the Bristol Channel; how far these dangers might be avoided by adopting Brean Down as the point of arrival, *White* 1225–1232——Navigation of the Channel with a heavy gale of wind dead a-head, *Ib.* 1243, 1244——In gales of wind in the Bristol Channel the tide is often missed, *Ib.* 1257–1261——Rate at which the Bristol Channel may be navigated in a dark night at low

BRISTOL CHANNEL—continued.

2. *Its Facilities for Steam Navigation*—continued.

water; the Channel is not very narrow, *Moriarty* 1814–1817——The heaviest gales in the Channel are generally south-west and westerly, *Edwards* 1924——It would not be safe to navigate the Bristol Channel between the Holms and Portishead at low water by night, *Ib.* 1936–1939——The Bristol Channel is as accessible as Liverpool; there is a little more fog in the Bristol Channel; witness would prefer going into Brean Down to going into Liverpool Harbour, *Ib.* 1978–1981——Opinion as to the facility of a steam-packet constantly navigating up and down the Bristol Channel at all times of the year, and at all times of the tide, *Denham* 2050——The few disasters which have occurred to the numerous steamers and other vessels navigating between Kingroad and the Holms is to be attributed to their being able to select their times of tide for departure or arrival; a Post-office vessel must run at all hazards at the stated hour, *Ib.* 2056–2059——Every navigator in the Bristol Channel ought to hug the south shore, to avoid the effect of the sea which the prevailing winds throw upon the north shore, *Ib.* 2059.

State of the Bristol Channel as regards fog, *Denham* 3498; *Rees* 3964–3970——The navigation of the Channel is difficult in bad weather, *Rees* 3895——Witness, in 32 years, has never met with any accident in the Bristol Channel, *Ib.* 3953–3957——The Bristol Channel is a most dangerous place, in consequence of the great fall of the tides and the chance of the sands; it requires protection, *Tayler* 2277.

3. *Its present State as regards Lights and Buoys, &c.; Improvements needed:*

Without a succession of lights above the Nash Point, no vessel can ever traverse as far as Flat Holm with any degree of certainty as to course, *Denham* 2050, 2051——In passing from Nash Point you lose the lights, in the average state of the atmosphere, before you pick up the Flat Holm light; there is a distance of 25 miles in total darkness, *Ib.* 2052, 2053——Witness would remedy that by a light upon Rowse Point; reason for recommending that point, *Ib.* 2054, 2055——The light upon the Flat Holm is easily distinguished both to the eastward and the westward, *Ib.* 2056——The Bristol Channel is lighted and buoyed on the most liberal system, *Ib.* 2060——It is a good channel for steamers, but might be much improved by more lights and buoys, *Drew* 4174–4183.

4. *Papers laid before the Committee:*

Returns of the number of vessels, with the amount of their tonnage, entered inwards and cleared outwards to and from certain ports in the Bristol Channel, to and from the several ports in Ireland, distinguishing the various ports; and also distinguishing colliers, with the amount of their cargoes, from other vessels, for the three years ending 31st December 1841, *App.* 333.

See also *Brean Down.* *City of Bristol* (Steamer). *Culver Bank.* *Denham,* Captain. *Falmouth and Gibraltar.* *Frolic,* The (Steamer). *Great Western Steam-ship.* *Hobb's Point,* 2. *Hobb's Point and Waterford.* *Holyhead,* 1. *Southern Line of Communication with Ireland.* *Waterford and London.* *Wrecks.*

Bristol and Cardiff. Relative merits of the passages from Bristol to Cardiff, Newport, or Aust, *Claxton* 167–173——The passage from Bristol to Cardiff, or from Bristol to Newport, would be preferable to Aust, *Ib.* 172——Two mail steamers would be required between Bristol and Cardiff; the present Milford packets would not answer the purpose, *Ib.* 222, 223.

Bristol and Carmarthen. Abstract of a return, showing the arrival and departure of the Bristol and Carmarthen mail at the Aust Ferry in the year 1841; specifying, on each day, whether the mail was forwarded across by an open boat or in the steamer; also, a similar return for the up-mail from Carmarthen to Bristol, *App.* 272, 273.

Bristol and Chepstow. The London letters would reach Chepstow an hour earlier by way of Gloucester than by the Old Passage across the Severn, *Stow* 336, 337——If the passage were improved the mail might leave Bristol within an hour after the arrival of the London train, but then it would reach Chepstow before the return letters, *Ib.* 338, 339——A mail-coach between Gloucester and Chepstow would be a convenience to passengers and for the London letters, but would sacrifice the northern, *Ib.* 340, 341——The London and the northern letters arrive at Gloucester at the same moment, and go together thence to Chepstow, *Ib.* 342–344——Time that would be gained by sending the London mails to Chepstow through Gloucester, *Ib.* 2412–2419.

Bristol and Clonmel. Expense of going to Clonmel from Bristol by way of Liverpool, *W. Smith* 896.

Bristol and Cork. Number of steamers between Bristol and Cork weekly, and average number of passengers, *Claxton* 22–24——Average length of the voyage to and from Cork and Bristol, *Ib.* 44–47——Tonnage and horse power of the steamers running between Bristol and Cork and Waterford; they all carry cargoes; it is material that they should not carry cargoes, *Ib.* 49–52——With improved packets there would not be a difference of more than three hours between Bristol and Cork, or Waterford; the steamers should

average

Bristol and Cork—continued.

average 11 miles an hour, taking one tide with another, *Claxton* 55-60——Class of vessels recommended for the packet line between Bristol and Cork, or Waterford, *Ib.* 61-68——The present boats from Bristol to the south of Ireland are very good for cargoes; more passengers would go if they were larger, and had better accommodation, *Ib.* 77-80——It would take five hours more, on an average, to steam from Bristol and Cork than to Waterford, *Price* 645-648——The course of a Cork steamer would be further south than the course from Bristol to Waterford, and therefore further from Milford, *Claxton* 674——Average number of cabin and deck passengers, and general traffic between Cork and Bristol; amount of the cabin fare, *W. Smith* 872-874; *White* 1234, 1235; *Moriarty* 1764-1771.

Average length of the voyages of the steamers now plying between Bristol and Cork, *Parsons* 1197-1200; *Moriarty* 1736——From Cork to Bristol is considered the shortest passage; people are not so apt to go back from Bristol to Cork as to come from Cork to Bristol, because of the westerly winds, *White* 1236——A favourable passage is more likely to be made against an easterly gale than against a westerly gale; there is always a strong westerly swell in winter, *Ib.* 1240, 1241——The steam-packets between Bristol and Cork are seldom used for communications by the Post-office, *Webb* 1642-1646——Ship letters are occasionally received by them, *Ib.* 1685, 1686——A bag is made up by the Post-office to go by the Bristol packets to Ireland, and a bag is also made up in Ireland of letters sent by the Bristol packets, *W. Smith* 976-978——The packets from Bristol to Cork would be preferred to packets from Milford to Cork, *Moriarty* 1869——The establishment of packets from the Bristol Channel to Waterford would be an advantage to Cork and the west of Cork, speaking of the correspondence from the West of England, independent of the London letters, *Kendrick* 2620——The Bristol steamers plying to the South of Ireland are not fast; they suit their starting to the tide, *Drew* 4205-4207.

See also *Bristol and Waterford.* *Holyhead*, 1.

Bristol and Dublin. Number of steamers between Bristol and Dublin, *Claxton* 22.

Bristol and Milford. Length of the land journey from Bristol to Milford; letters would be conveyed quicker by steam, *Evans* 819-824——Two hours and a half would be saved by conveying letters to Brean Down, and so to Milford, *Ib.* 825——A line of railway from Bristol to Milford, through South Wales, would expedite the letters from the South and West of England more than the line by Holyhead, *Webb* 1689-1692——Letters from Bristol could not get opposite to Milford Haven by means of a railroad from Bristol to Brean Down, and from thence by a steamer, quicker than by the mail-coach through South Wales, *Denham* 2245-2250——Rate at which the mail travels from Bristol to Hobb's Point, *Stow* 2343-2346.——*See* also *South Wales Railway.*

Bristol and Newport. See *Bristol and Cardiff.*

Bristol and Pembroke. The London mail arrives at Bristol at five minutes past one a.m., and the Pembroke mail is dispatched thence at six in the morning; causes of this detention; meeting with the northern mail at Chepstow, *Stow* 315-318——Time that would be saved by taking the Pembroke mail through Gloucester; no tender could be obtained for it, *Ib.* 319-335——Cause of the delay of five hours in the dispatch of the London mail from Bristol to Pembroke, *Ib.* 2324-2326.

See also *Carmarthen and Pembroke.* *London and Waterford.*

Bristol and Southampton. See *Southampton and Bristol.*

Bristol and Waterford. Number of steamers between Bristol and Waterford weekly, and average number of passengers, &c., *Claxton* 22-24; *W. Smith* 870, 871, 875. 878——The largest trade between Bristol and Ireland is through Waterford, *Claxton* 26-28——It would be of immense advantage to merchants to have a daily communication between Bristol and Waterford, or Bristol and Cork, *Ib.* 30——Average length of voyages between Bristol and Waterford, *Ib.* 40; *Burgess* 446-451——With the prevailing winds the Waterford steamers have the advantage of the Cork steamers, *Claxton* 48——Difference that would arise from various winds on the length of the voyage, *Ib.* 65-70——The mail steamers on the Bristol and Waterford line must either be Government ships or under contract; number required, *Ib.* 213-221——Comparison of the voyages to and from Waterford and Cork respectively, and Bristol, *Burgess* 531-535——The tide would not have an effect of more than half an hour upon the whole voyage from Bristol to Waterford; causes of this fact explained, *Ib.* 536-546.

A line of packets between Bristol and Waterford would be a great public accommodation, *Price* 629, 630——A daily intercourse with Bristol would be a great advantage to the trade of Waterford, *Ib.* 660-663——Amount of the fare by mail from Bristol to Hobb's Point, and from thence to Waterford, *W. Smith* 876-878——Number of hours required in going from Bristol to Waterford by Milford, also by way of Liverpool and Dublin, *Ib.* 906-917——Average time occupied in going from Bristol to Waterford, *Parsons* 997

Bristol and Waterford—continued.

——Delay that takes place in the transmission of letters from Bristol to Waterford by Holyhead and Liverpool, *Parsons* 1574–1577——Hour at which the Irish mail could leave Bristol, supposing it to be conveyed across the Old Passage in a steam-boat, *Stow* 2333–2335——Hour at which it would arrive in Swansea; time that would be gained, *Ib.* 2336–2340——Time at which it would arrive at Hobb's Point and at Waterford, with a better description of steam-boats, *Ib.* 2341, 2342——Time required from Bristol to Waterford by Hobb's Point, *Ib.* 2520——The same by Brean Down, *Ib.* 2521——Difference of time in favour of going by Brean Down, *Ib.* 2522–2525——Regularity could not be ensured by steamers running from the Bristol Channel to Waterford; they would often be unable to make head, *Rees* 3896–3906——All the difficulties are in the Channel beyond Milford, *Ib.* 3907–3909.

See also *Bristol and Cork.* *Dale Bay.* *Holyhead,* 1. *Waterford and Bristol.*

Burgess, Captain *George.* (Analysis of his Evidence.)—Commands the Osprey steamer between Bristol and Waterford, 443, 444——Average and quickest voyages between Kingroad and Waterford, 446–451——Has never been delayed by weather in going up the Bristol Channel; has never put into a port, 452, 453——The River Suir may be taken day and night, especially by mail steamers without cargo; Hook and Dunmore lighthouses, 454–457——Has never been prevented going into the Suir at any time of wind and tide, 458–460——Has frequently beaten the Milford packets by eight or ten miles, with 700 head of pigs on board, 461–465——A vessel would often make Waterford when it would be difficult to make Cork; prevailing winds, 466–473——Course usually steered from Waterford to Bristol, 474–476——If a harbour could be made at Brean Down it would save 18 miles of steaming in foggy weather, but there is a heavy sea, which witness thinks makes it impracticable, 477–479.

A mail steamer of 600 tons and 250 horse power would average 18 or 19 hours between Brean Down and Waterford, 480–483——Four more hours to Cork in fine weather, and six or eight in foul weather, 484–486——Longest and shortest voyages of witness's ship, 487–499——Causes of the Liverpool and Kingstown packets exceeding their shortest time more frequently than the Osprey to Bristol, 500–504——The irregularities will be greater in the greatest distances by sea, starting at all times of the tide, 505–510——Rate of the tide at Portishead down to the Holms; a steamer with the ebb-tide may drop down as far as Wormshead, and in spring-tides to Tenby, 511–523——Difference of time occupied in running up to Portishead against the tide, 524–530——Comparison of the voyages to and from Waterford and Cork respectively from Bristol, 531–535——The tide would not have an effect of more than half an hour upon the whole voyage from Bristol to Waterford; causes of this fact explained, 536–546.

The facilities of landing at Waterford could not be improved, 547–549——Cork Harbour is as good as possible, but you cannot get up at all times of the tide; at Waterford you can, 550–554——The voyage to Cork is more difficult, the sea being rougher and more exposed to the Atlantic, 555, 556——There is a bar on entering Waterford Harbour, but steamers can pass over it at all times; in foggy weather it could not be done, 557–566——Passage, five miles from Cork, could be approached at all times of the tide, where there is a quay land-locked, 567–571——Witness can go up to Portishead by night as well as in the day; in thick fogs too he has been up, slackening his speed and heaving the lead, 572–581. 591–594——Depth of water in Waterford Harbour, 582–587—And in the Bristol Channel, 588, 589——The Newport and Cardiff boats have never failed; the old boats failed twice in making their passage, 595–598——Landing-places will be required on each side the Bristol Channel to enable steam-boats to start at all times of the tide, 599–602.

Burnham Lights. See *Bridgewater or Burnham Lights.*

C.

Cairn Ryan and Belfast. Objections to this line of Post-office communication, *Rep.* viii.
See also *Belfast.* *Loch Ryan.*

Cairn Ryan and Loch Larne. Advantages that would result from selecting these places as packet stations, *Rep.* viii.——The communication should be by Cairn Ryan and Larne instead of by Portpatrick and Donaghadee, *Macartney* 3725——No outlay would be required at Larne, and a small landing-place is all that is wanted at Cairn Ryan, which might be done by private means, *Ib.* 3726, 3727.
See also *Loch Larne.* *Loch Ryan.* *Portpatrick and Donaghadee,* 4.

Cardiff. There is no harbour at Cardiff calculated for Post-office purposes; a harbour could be made, *Edwards* 2021–2023——Locality at which witness would recommend the harbour to be constructed; breadth of the Channel at that part, *Ib.* 2026. 2028–2031——Probable expense of constructing the harbour, *Ib.* 2025.
See also *Bristol and Cardiff.* *Swansea.*

Cardiff and Brean Down. See *Brean Down*, III. 2.

Cardiff and Hobb's Point. Distance from Cardiff to Hobb's Point, *Claxton* 184.

Cardiff and Portishead. Average passage from Cardiff to Portishead; three hours should be allowed, *Claxton* 157–166.——*See* also *Newport.*

Cardiff and Uphill. To cross from Cardiff to Uphill or Brean Down would require a pier to be constructed at Penarth, or some other point, *Denham* 2227——The navigation from Cardiff to Uphill could be conducted with the same regularity in point of time as it can be at the Aust Ferry; the water at the New Passage confines it almost to a boating operation, *Ib.* 2228.——*See* also *Brean Down*, III. 2. *Old Passage Ferry*, I. 2.

Carmarthen and Pembroke. The Pembroke mail cannot be dispatched from Carmarthen until the arrival of the Bristol mail, *Stow* 345–348——Three hours might be saved in dispatching the Pembroke mail from Carmarthen, if the mail could be carried across the Old Passage at all hours of the night in a steam-boat, *Ib.* 349–353.

See also *Bristol and Pembroke.*

Central Line of Communication with Ireland. The concentration of the leading lines would be a measure of sound economy; general observations as to the best means of effecting this, *Rep.* iii., iv.

See also *Chester and Holyhead*, or *Port Dynllaen.* *Holyhead.* *Liverpool.*

Chepstow. See *Bristol and Chepstow.*

Chester and Holyhead, or *Port Dynllaen.* A railway recommended from Chester to the best of those two ports; immediate inquiry into their relative capabilities proposed; no expense to be then spared in carrying the best plan into effect, *Rep.* iv., v.——Probable cost of a railway from Chester to Holyhead, or to Port Dynllaen, *Cubitt* 3364–3375——The country between Chester and Bangor is remarkably favourable for a railway, *Bidder* 3649–3650——Estimate of the cost of a railway from Chester to Holyhead, with all the establishment complete, *Ib.* 3651——Advantages to be secured by this line; letters would reach Kingstown from London in 17 hours instead of 23 hours by Liverpool, *Ib.* 3659——This would apply to any other port in North Wales situated equally favourably, *Ib.* 3660——It would not be a remunerating line from its own intrinsic traffic, *Ib.* 3661——Government should assist in carrying it out; loss sustained by the present establishments at Milford, Holyhead, and Liverpool, *Ib.* 3662.

Single line of railway proposed with an electrical telegraph, *Bidder* 3670, 3671——Government should agree to pay 75,000 *l.* a year for the conveyance of the mails from Chester to Dublin, and there are parties who would undertake to make the railway, *Ib.* 3672, 3673——The vessels should belong to Government, but all the expenses would be paid by the railway company, who should receive the fares, *Ib.* 3674–3677——The speed on the railway would be 26 miles an hour, including stoppages, and might be 30 with perfect safety, *Ib.* 3681.

There are no engineering difficulties between Bangor and Holyhead, *Bidder* 3687——The line of country from Chester to Port Dynllaen through Bangor is favourable for a railway, until within six miles of that place; the railway would terminate at a considerable elevation above the sea, which is objectionable, *Ib.* 3688–3691——From Chester to Holyhead the Menai Bridge is the highest level, and the railway would come on a level with the pier at Holyhead, *Ib.* 3692–3696——Holyhead would be approached by railway at less cost and difficulty than Port Dynllaen, *Ib.* 3697——No other line could be made for anything like so small a sum as that from Chester to Holyhead, *Stephenson* 3714——Both the proposed lines of railway to Port Dynllaen are full of engineering difficulties; it is out of the question to attempt them, *Ib.* 3715–3718.

See also *Holyhead*, 3. *Menai Bridge.* *Port Dynllaen.* *Railway Travelling.*

City of Bristol, The (steamer). Loss of the City of Bristol steamer in the Bristol Channel, *Claxton* 25.

Clonmel. See *Bristol and Clonmel.*

Coleraine. See *Belfast.*

Claxton, Christopher, Lieut. R.N. (Analysis of his Evidence.)—Harbour-master at Bristol, and managing director of the Great Western Steam Ship Company, 1–3——Nothing can be much better than the Bristol Channel for steam navigation, 4–5——The course is very nearly straight from the sea up to Portishead; there are no difficulties up to there, 6–7——In the Bristol river there are decided difficulties, 7——The Great Western steamship has made 22 voyages out and home, and has come up to Kingroad at all times of the tide, by day and by night, without the delay of an hour, 8–14——Steamers from Waterford make the Smalls first, and thence proceed in safety straight up the Bristol Channel, even in thick weather, 15–17——From Cork they make Lundy, and with wind from the northward or westward would hug the Welsh coast for the sake of smoother water, 18, 19——Many steamers pass the Holms, on which there is a lighthouse, without making any other land, 20–21.

Claxton, Christopher, Lieut. R. N. (Analysis of his Evidence)—*continued.*

Number of steamers between Bristol and Cork, Waterford and Dublin, weekly, and number of passengers, 22–24——Wrecks in the Bristol and Irish Channels of steamers within the last 12 years, 25——The largest trade between Bristol and Ireland is through Waterford, 26–28——There is a large trade springing up between Wexford and Liverpool, 29——It would be of immense advantage to merchants to have a daily communication between Bristol and Cork, or Waterford, 30——Irregularity of the mails by Milford; whenever steamers leave Bristol for Cork or Waterford about the same time as the mail they send their letters by them, which reach their destination sooner, 31–38——Average length of voyages between Bristol and Waterford, 40——There is an Act for a pier at Portishead, which would proceed at once if there were any chance of business arising out of it, 41–43——The average voyage to and from Cork is four hours more each way, 44–47——With the prevailing winds the Waterford steamers have the advantage, 48.

Tonnage and horse-power of the steamers running between Bristol and Cork and Waterford; they all carry cargoes; it is material that they should not carry cargoes, 49–52——The passage from Portishead to Waterford ought not to average more than 17 hours, 53–54——The steamers should average 11 miles an hour, taking one tide with another, 55–58——With improved packets there would not be a difference of more than three hours between Bristol and Cork, or Waterford, 59–60——Class of vessels recommended for the packet line between Bristol and Cork, or Waterford, 61–63——A wind a-beam is the worst for steamers, 64——Difference that would arise from various winds on the length of the voyage, 65–70——If at the Holms a steamer meets a flood-tide and a gale of wind she drops her anchor till the tide is spent; a better class of steamers would go on, 71–76——The present boats from Bristol to the South of Ireland are very good for cargoes; more passengers would go if they were larger and had better accommodation, 77–80.

There would be no difficulty in going to and from Portishead and Cork or Waterford, whatever the wind and tide may be, 81–85——Estimated cost of Portishead pier, including approaches, &c.; it would answer the purpose, 86–103——It could be finished as soon as the steamers could be built, 110——In Kingroad steamers can always be approached by small steam-tugs, but not by open boats, 111–113——Capabilities of Brean Down for a harbour; a floating breakwater would suffice; time by railway thence to Bristol; two hours' steaming would be saved thence, as compared with Portishead, 114–127——The more intricate navigation above the Holms would be saved, 128——Difficulty of making a landing-place at Brean Down on account of the great rise and fall of the tide; it might be made an admirable packet station, better than Portishead or any other place, if Government went to the expense of a harbour, 129–137——The correspondence of the Newport and Cardiff districts would be more certain by way of Portishead than by Milford Haven, 138–142—— The change would be of advantage to the Merthyr Tydvil district, 143, 144——Swansea, and all places to the west, would be worse off, as regards their Irish correspondence, if Milford were done away with, 145–150.

There is no sea in the Bristol Channel which a good steamer of sufficient power need ever mind, 151–156——Average passage from Cardiff to Portishead; three hours should be allowed, 157–166——Relative merits of the passages from Bristol to Cardiff, Newport or Aust, 167–173——Cardiff would be the line for a communication from Brean Down; but Sully Island would be better, 174——If the line of communication were kept up through Milford, a course from Bristol to Cardiff or Newport would be preferable to the present passage to Milford, 175–183——Distance from Cardiff to Hobb's Point, 184——Distance from Hobb's Point to Waterford; number of hours' passage at present and with good steamers, 185–188. 204, 205——Vessels can come alongside the pier at Hobb's Point at all times of the tide, but not in all weather, 189–191——Proper steamers could make their passage with greater regularity from Hobb's Point than from any other point in the Bristol Channel, 192, 193——The present steamers are very inefficient, 194–197.

With a heavy sea, and wind west-south-west or west-north-west, the pier at Hobb's Point cannot be safely approached, 198–203——If the pier at the horse-ferry at the Old Passage were improved, time would be saved; occasional detention of the mail there, 206–212——The mail steamers on the Bristol and Waterford line must either be Government ships or under contract; number required, 213–221——Two would be wanted between Bristol and Cardiff; the present Milford packets would not answer the purpose, 222, 223——Reasons why the Commissioners of inquiry into different ports did not examine as to the Bristol Channel, 224–226.

[Second Examination.]—Produces a chart of the Bristol Channel from the Holms to Portishead at dead low water and spring tides, and a plan of the road from Portishead to Bristol and of the pier, 669——Correction of Question 131 as to the rate at which the tide rises, 670——A steamer from Bristol to Waterford might touch daily at Milford, or in Dale Roads, for mails and passengers; it would lose about an hour, 671–673. 675–682. 724–728——The course of a Cork steamer would be further south, and therefore further from Milford, 674——Examination as to the plan of the proposed pier at Portishead, and its efficacy for the object, 683–703. 710–723——Rate of the tides at different parts

Claxton, Christopher, Lieut. R. N. (Analysis of his Evidence)—*continued.*

parts of the Bristol Channel, 704–709——The Portishead pier might be completed in 18 months, 729–731——Barnstable Harbour is a bar harbour, 732, 733——Longest, shortest, and average voyage of a first-class steamer from Portishead to Hobb's Point, 734–737.

Contract Steam-packets. Return of the number of passengers by the contract steam-packets in the year 1841, *App.* 271.

CORK:

I. *Generally.*

II. *How far adapted for a Post-office Packet Station:*

1. Generally, and as compared with Waterford.

2. Navigation of the Harbour; its Difficulties and Dangers; Improvements needed.

III. *Internal Post-office Arrangements.*

IV. *Papers laid before the Committee.*

I. *Generally:*

Number of steamers that sail from Cork weekly, and their destination, *White* 1216——Vessels from abroad often call at Cork for orders or to leave their letters; it is the only port to the westward they ever enter, *Ib.* 1217–1219——There is a very large and increasing business between Cork and that portion of the country which lies to the south-west, Limerick, Tralee, and Kerry, generally, *Ib.* 1220; *Webb*, 1626, 1627——Facilities afforded for repairs at Cork to vessels putting in there from injury; reparation of the machinery of steam-vessels and boilers; manufacture of steam-engines; largest size of vessels launched, *White* 1275–1280.

Amount per ton duty paid by vessels calling at Cork for orders; continual and very rapid increase in these dues, *W. J. Shaw* 1284——Total amount of tonnage paid in each year from 1837 to 1841, *Ib.* 1286——Number of vessels which called for orders at Cork or Cove during the year 1841, and up to the 1st of April 1842; all these vessels posted their letters at Cork, *Ib.* 1287–1289——Cork is the principal port of departure from Ireland for troops on foreign service and to England, *Ib.* 1291——Total amount of tonnage that entered the harbour inwards during the year 1841, *Ib.* 1295.

Arrangement proposed by which letters might arrive at Cork from London and the West of England in 30 hours by a port in the Bristol Channel; advantage that would result to the districts about Cork; time at present taken by way of Dublin, *Webb* 1628–1639——Waterford would not derive the same advantage from this arrangement, because under existing circumstances they would get their letters as soon by Dublin, *Ib.* 1650–1660——A considerable number of ship letters are received at Cork; they are casualties, which are not looked for regularly, *Ib.* 1640–1646——Cork is a very extensive rendezvous for vessels sailing to different parts of the world calling for orders and provisions; it is the only port in Ireland for the embarkation of troops, *Ib.* 1647–1649. The traffic with Cork and Waterford would not increase if there was a daily communication with larger packets, and more accommodation; few persons travel by the present communication in the winter; steamers could not be kept up for the conveyance of passengers alone; the returns are principally upon goods, *Moriarty* 1843–1849——A great many ship letters come from Cork by ships from abroad, *Kendrick* 2574——Great difficulties are found from the present insufficient communication in transmitting those letters to England, *Ib.* 2575

II. *How far adapted for a Post-office Packet Station:*

1. Generally, and as compared with Waterford.

Its advantages and disadvantages as a packet station for receiving the English letters by the southern line, as compared with Waterford; number of letters and passengers, &c. *Rep.* vii.——As ports, Cork and Waterford are equally eligible for the class of vessels required, especially iron steamers; Cork is the most approachable at all times of the tide, *Evans*, 264–268——The voyage to Cork is more difficult than to Waterford, the sea being rougher and more exposed to the Atlantic, *Burgess* 555, 556——Passage, five miles from Cork, could be approached at all times of the tide, where there is a quay land-locked, *Ib.* 567–571——A bill has been obtained to make a railway from Cork to Passage; it will be a long time before it is carried into effect; it is a wild scheme, *White* 1238——Distance from Passage to Cork; length of time occupied by the mail-cart in performing its journey between the two places, *Ib.* 1266, 1267.

Preference should be given to Cork as a station for the packets to run to, so far as Post-office communication for the South of Ireland is concerned, *Webb* 1662, 1663——Respective merits of Waterford and Cork, as ports to which an efficient line of packets from Milford should run, *Ib.* 1699——Districts which would he affected by, or are indifferent to the change or the selection of the port of departure whether it be Cork or Waterford, *Kendrick* 2598–2608.

CORK—continued.

II. *How far adapted for a Post-office Packet Station*—continued.

2. Navigation of the Harbour; its Difficulties and Dangers; Improvements needed:

Cork is an easier harbour than Waterford; the landfall is good, and the entrance easy of access by day and night, *Evans* 308, 309——Cork Harbour is as good as possible, but you cannot get up at all times of the tide, *Burgess* 550–552——There are no dangers on entering Cork Harbour after reaching Ballycotton Island; distance of Ballycotton from the entrance to the harbour, *White* 1177–1179——The harbour can be made in thick and foggy weather; it can be done by heaving the lead, *Ib.* 1180, 1181——Nature of the soundings in the harbour, *Ib.* 1182——After passing Roche's Tower there is not the least difficulty in getting to an anchorage at Cove or Passage; there is a harbour or pier at Passage at which passengers can land at all times of the tide, *Ib.* 1187–1190——It would be dangerous to run into the harbour unless Roche's Tower was made as a landfall, *Ib.* 1211, 1212.

Nature of the soundings entering Cork Harbour; there are no difficulties whatever in the navigation, *Moriarty* 1741–1746. 1763——A vessel bound to Cork with the prevailing winds would make Barry Island just to the eastward of Cork entrance and between Youghal and Cork, *Denham* 2146–2148——Cork Harbour is a very efficient and safe harbour to approach; improvements that would be necessary in the navigation for the purposes of vessels tied to a particular time, *Ib.* 2149–2151——Difficulties in the navigation of Cork Harbour, after passing the entrance, in going up to land at Passage at night; it might be lighted so as to overcome those difficulties, *Ib.* 2162——Estimated cost of a few local lights, *Ib.* 2163——A landing-place upon the Holy Ground, or up by the Old Barrack, would be a guide to the navigation in the night, *Ib.* 2164——Situation in which witness would place the cross-lights, *Ib.* 2165, 2166——There is no difficulty in entering Cork Harbour at night when once you see the Roche's light, with the exception of that already spoken of, *Ib.* 2172——The anchorage is very well buoyed and quite sufficient as it is, for daylight, *Ib.* 2173.

3. *Internal Post-office Arrangements:*

Advantages of the double mail from Dublin to Cork; whether this advantage would be greatly felt by other towns, *Parsons* 1081–1083——Distance between Cork and Waterford and Waterford and Limerick; time occupied by the mail in performing the journey, *Ib.* 1118, 1119——Dublin is the great channel of communication with Cork; hours of arrival and departure of the Dublin mail; delays in the communication; it might be much accelerated, *Webb* 1589–1598. 1609. 1680–1682——Mails dispatched into the interior from Cork in the morning and evening; hours at which dispatched, *Ib.* 1599, 1600. 1604–1608; *Kendrick* 2565–2568——Average general communication of Cork with Dublin daily, *Webb* 1602, 1603.

Hour at which the mails should be dispatched into the interior, supposing a line of packets to be established, and the average passage such as to make the mail due at three o'clock in Cork; margin that should be allowed for irregularities in the arrival of the packets, *Webb* 1664–1675. 1687, 1688——Proportion of English letters brought by the morning and evening mails from Dublin; the regular line from London is by the Clonmel mail; delays that take place in the transmission of letters, *Ib.* 1676–1679. 1718——Comparative amounts of money received in Cork and in Waterford upon letters received and sent, *Kendrick* 2646.

IV. *Papers laid before the Committee:*

Receipts and expenditure of the Cork Harbour Commissioners for the year ending 1st August 1837, *App.* 334–339.

Return of the number of letters that have been posted at Cove, Cork, and Waterford post-offices, of ships arriving from abroad, during the 12 months ended the 25th April 1842, *App.* 280.——*See* also *Brean Down* III. 3, 4. *Waterford.*

Cork and Bristol. See *Bristol and Cork.*

Cork and Dublin. See *Dublin and Cork.*

Cork and Falmouth. See *Falmouth and Cork.*

Cork and London. See *London and Cork.*

Cork and Milford. Average number of letters per day received in Cork by way of Milford, *Webb* 1588. 1601. 1603——Places from which letters are received by way of Milford, *Ib.* 1630——No letters are received in Cork from London either by way of Milford or Bristol; the only letters received are those from South Wales, *Ib.* 1700–1703——Arrangements might be made by which the mails would arrive in Cork in the same number of hours by Milford as by Dublin, *Ib.* 1708–1710——Route by which the mail comes from England; delays and irregularities in its arrival; convenience that would be afforded to merchants at Cork if there were a channel of communication by way of Milford as well as by Dublin, *Ib.* 1717–1729.

Cork

Cork and Southampton. See *Southampton and Waterford.*

Cork and Waterford. Arrangement by which the mail from Waterford could be made to arrive at Cork at the time at which the Dublin mail now arrives; there would be no convenience to the merchants; they complain of the Dublin letters as well as of those from Milford; cause of the delay at Waterford, *Webb* 1705-1707. 1710.

Average number of passengers carried by the packets between Cork and Waterford, *Moriarty* 1842. *See* also *Waterford and Cork.*

Creden Head. See *Waterford*, 3.

Cubitt, Mr. See *Old Passage Ferry*, II. 1.

Cubitt, William. (Analysis of his Evidence.)—Civil engineer, 3215——The shortest sea passage is the best line of communication between London and Dublin, 3216-3219——Thirty miles of railroad may be set against 10 miles of sea, 3220——The port of Liverpool is not good as regards its entrance from the sea, and packets can rarely come alongside the pier, 3221-3224——Information already existing as to the relative merits of Holyhead and Port Dynllaen, 3225-3230——To make the Holyhead line efficient, 83 miles of railway, and improvements in the harbour are required, 3231-3234——Evidence as to the capability of the present harbour to be improved or extended, so as to admit a larger class of packets, 3235-3245——Addition to the existing harbour proposed; doubts as to the possibility of making it sufficient by dredging, 3246-3265——Draught of water of the Government contract steamers, 3266-3269.

Probable expense of a railway to Holyhead and an improved harbour, 3270-3278——The railway to Port Dynllaen, together with a harbour fit for a packet station, would not cost less than 3,000,000 *l.*, 3279-3281——Fitness of the Menai Bridge for railway communication; means suggested for carrying trains across, 3282-3286——There would be increased trade and traffic at Holyhead if there were an improved pier and a railway 3287-3289——Estimated expense of improving the harbour observed upon, 3290-3294——Comparative merits of Holyhead and Port Dynllaen, with reference to the length of voyage, direction of winds, &c., 3295-3308——Relative merits of different lines of railway to Port Dynllaen, 3309, 3310——Little time would be lost in crossing Menai Bridge by railway, 3311-3313——An average speed of 25 miles an hour, including stoppages, may be allowed on railways, 3314-3316——Average passage from Holyhead to Dublin; total time to be occupied between London and Dublin, 3317-3319——The route to Dublin *viâ* Holyhead or Port Dynllaen would then beat any route to the South of Ireland *viâ* Waterford or Cork, 3320-3328——A railway to Holyhead or Port Dynllaen would be a work of great national importance; it would not remunerate private speculators; part should be undertaken by the public, 3329-3335——It would be the most perfect communication of all, with all parts of Ireland, 3336.

The Post-office communication of South Wales with Waterford might go by Dublin; London and Dublin should be the great centres, 3337-3342——Means of communicating with Bristol and South Wales suggested, 3343-3355——Holyhead might be made to serve as a packet station, and also as a harbour of refuge; whether some better place might be found, 3356-3358——The concentration in one line, either by Holyhead or Port Dynllaen, of all the traffic and correspondence is the cheapest and most eligible plan, 3359-3363——Probable cost of a railway from Chester to Holyhead or to Port Dynllaen, 3364-3375——Extract from witness's Report in 1838 on Waterford Harbour, 3376, 3377.

Culver Bank. The Culver Bank draws up and extends across the mouth of Bridgewater Bay, *Denham* 2058——Expense of putting a light upon the Culver and upon the Rowse Point, and additional sum that would be required annually for maintenance, lighting, &c. *Ib.* 2061-2063——It would be a very great acquisition to the Bristol Channel if lights were put on the Culver Sands and Rowse Point, and also on the Scar-weather, *Rees* 3931-3952.——*See* also *Brean Down*, II., III., 4.

D.

DALE BAY:

1. *Whether adapted for a Post-office Packet Station.*
2. *Practicability of Steamers starting from Brean Down and Portishead for Cork or Waterford, calling at the Bay for the Mails.*
3. *Works necessary to be executed to render it fit for the purpose.*

1. *Whether adapted for a Post-office Packet Station:*

Dale Roads are nearly land-locked, *Price* 740——At Milford a boat could not always get on board a steamer with passengers and mail, but could at Dale Bay, *Evans* 779-783——The road from Carmarthen to Dale Bay would be through Haverfordwest, *Ib.* 787-789——Road to Hobb's Point, *Ib.* 790-792——Unfitness of Dale Bay as a steam-packet station; there are no landing-places whatever, *Edwards* 1909-1912——Dale Bay would be the best position in the Milford Roads for a packet station, with a communication to Haverfordwest, *Denham* 2131-2133——Dale Bay is a preferable station to Hobb's Point, *Ib* 2189——Supposing a Post-office communication to be established with

Dale Bay—continued.

1. *Whether adapted for a Post-office Packet Station*—continued.

with Ireland, witness would say from Dale Bay to Waterford would be the best points, *Denham* 2190–2194——Whether a Post-office communication from Hobb's Point to Dale Roads would be practicable, *Ib.* 2201–2203——Comparative merits of Dale Bay, the Mumbles, and Brean Down, for Post-office packet stations, *Ib.* 2223–2226——Dale Bay dries at low water a long way out; in south-west winds there is a heavy ground-swell, *Hammond* 4035–4039.

2. *Practicability of Steamers starting from Brean Down and Portishead for Cork or Waterford, calling at the Bay for the Mails:*

A steamer from Bristol to Waterford might touch daily at Milford, or in Dale Roads, for mails and passengers; it would lose about an hour, *Claxton* 671–673. 675–682. 724–728——The steamer from Bristol to Waterford could easily call in Dale Roads; an hour's detention would be sufficient; if it called at Milford, an hour and a half would be required, *Price* 738, 739——In very bad weather a greater delay might occur, but packets can approach in all seasons, *Ib.* 742–747——They would have to remain in the roadstead; they might embark carriages by lighters, but very few go, *Ib.* 748–754——The detention of a steamer sailing from Portishead or Brean Down to Waterford, calling in Dale Bay, would be from one to two hours, according to the weather, *Evans* 784——In sailing to Cork the course would be more to the southward, and further from Milford, *Ib.* 785, 786——The detention of a vessel bound for Cork or Waterford would be an hour or two more in touching at Dale Bay, *Ib.* 803, 804——Extent to which the passage of a vessel bound from Brean Down to Cork or Waterford would be retarded by calling at Dale Bay, or Milford Haven, or the Mumbles; difference between each, *Moriarty* 1818–1823. 1831–1841——If steamers starting from Portishead or Brean Down were to call at Milford or Dale Bay for the Welsh bags, it would be attended with a vast loss of time, *Edwards* 1944–1948——Detention which would arise to vessels bound from Brean Down to Waterford, and also to Cork, calling at Dale Bay, *Denham* 2134–2144——It would be practicable for Bristol and Waterford steamers to pick up the mail at Dale Bay; three hours would be lost; there is no landing-place, and in a south-east wind a landing could not be effected, *Hammond* 4024–4032.

3. *Works necessary to be executed to render it fit for the purpose:*

A pier would be required, and it must be built by Government; there is no town connected with the roadstead, *Evans* 793–797; *Denham* 2197——Estimated expense of a pier, *Denham* 2129. 2198.

See also *Brean Down*, III. 4. *East Dale Bay.* *Mumbles*, The, 1. *Portishead and Waterford.*

Denham, Commander *Henry Mangles*, R. N., F. R. S., a Marine Surveyor to the Board of Admiralty. (Analysis of his Evidence.)—Was employed in surveying the Bristol Channel for three years; the survey was completed in 1832, 2045–2047——Extent of that survey, 2048, 2049——Opinion as to the facility of a steam-packet constantly navigating up and down the Bristol Channel at all times of the year and at all times of the tide, 2050——Without a succession of lights above the Nash Point, no vessel can ever traverse as far as Flat Holm with any degree of certainty as to course, 2050, 2051——In passing from Nash Point you lose the lights, in the average state of the atmosphere, before you pick up the Flat Holm light; there is a distance of 25 miles in total darkness, 2052, 2053——Witness would remedy that by a light upon Rowse Point; reason for recommending that point, 2054, 2055——The light upon the Flat Holm is easily distinguished, both to the eastward and the westward, 2056——The few disasters which have occurred to steamers and other vessels navigating between Kingroad and the Holms is to be attributed to their being able to select their times of tide for departure or arrival; a Post-office vessel must run at all hazards at the stated hour, *Ib.*——If the navigation stopped at Brean Down there would be only the Culver Bank to provide for, which might be done by means of a screw-pile lighthouse upon the sand or a light-vessel, 2058——A light might be also erected upon the Point of Brean Down or upon the point of any breakwater extending out upon the How Rocks, *Ib.*

Paragraph from witness's "Sailing Directions," published in 1839, respecting the Bridgewater or Burnham lights, 2059——These lights render the South Channel between the Culver and Bridgewater Bar towards Brean Down the best to determine upon under the average circumstances of wind and weather, 2056——Every navigator in the Bristol Channel ought to hug the south shore, to avoid the effect of the sea which the prevailing winds throw upon the north shore, *Ib.*——Reasons which render Brean Down Point the best point for approach or departure when a higher point than Milford or the Mumbles is adopted, *Ib.*——Any vessel passing above Ilfracombe in the Bristol Channel is open to the casualties of a channel affected by tidal deviations, especially when such vessel is restricted to positive times of departure, *Ib.*——It is not necessary for the general improvement of the navigation that the lights mentioned by witness should be erected; the Bristol Channel is lighted and buoyed on the most liberal system 2060——Expense of putting a light upon the Culver, 2061—And upon the Rowse Point 2062——Additional sum annually for

Denham, Commander *H. M.*, R.N., F.R.S. (Analysis of his Evidence)—*continued.*

for maintenance, lighting, &c., 2063——Lights are not erected where the Trinity Board would at this moment cheerfully erect them, because they are unable to put on a toll unless a petition for the light comes from the owners of vessels as well as the masters; evils of this system; indifference existing on the subject, 2063, 2064. 2066*-2068——Funds possessed by the Board to meet the expense, 2065——In the case of private lights there is no right to impose a toll, except from the actual vessels using the port such light belongs to, and which the Harbour Bill provides for; case of the light at the entrance of Port Fleetwood, 2066.

Witness would recommend, in the event of a packet station being formed in the Bristol Channel, that it should not be higher up than Brean Down, 2069——The more water passage is diminished, the more certainty of operation is insured, *Ib.*——With the erection of the lights mentioned, Brean Down could be approached at all times of the tide with a certain degree of regularity, 2069*, 2070——Capabilities at Brean Down Point for the formation of a harbour, 2072——Facilities for landing at low water, 2073——Floating breakwaters are not applicable to any place which has a material rise of tide, 2079——Brean Down would be well sheltered from all winds supposing a pier were made, 2080——It would be most exposed to the north-east wind, 2081——Length to which witness would carry out the pier, 2082——Solid masonry that would be required, 2083——There are stones in the immediate neighbourhood adapted for a breakwater, 2084——Height of the headland of Brean Down, 2085——Estimated expense of a pier, 2086, 2087——It would not be a harbour of refuge, but purely a packet station; a harbour of refuge abreast of the Holms is unnecessary, 2088–2091——It is all a roadstead above the Holms, 2092.

The Mumbles is the most eastern point from whence vessels could arrive and depart at the Post-office time, 2093——Accommodation at present at the Mumbles for vessels; as a roadstead, it is so open to the south-eastern and southerly gales as to render it a very trying anchorage; peculiar advantages presented for a breakwater, 2094, 2095——Plan recommended by witness to render it eligible as a packet station, 2096——Extent to which a pier or breakwater should be carried, 2097——Probable expense of such pier, 2098, 2099——Facilities for the formation of a breakwater 2100–2102——Accommodation which would be afforded to vessels, supposing a pier to be erected upon the proposed scale, 2103——Danger of its filling up, 2104——The roadstead is at present protected by the Mumbles Head from the south-west, 2105——Height of the Head above the water, 2106——Prevailing wind to which the roadstead is exposed, 2107——There is no good anchorage ground in deep water outside the Head; it is as open and uneasy a roadstead as possible, 2111–2113——To the westward of the Mumbles Head it is open sea between that and Ireland; there are no difficulties of navigation between the Mumbles and Ireland, 2114, 2115——Distance from the Mumbles to the town of Swansea; there is a good turnpike-road and a tramway between the two places, 2117–2120——There are large collieries in the neighbourhood of Swansea, and the coal is peculiarly adapted to steam-packet purposes, 2121, 2122.

A vessel from a port in the Bristol Channel, bound to Cork or Waterford, might call at any hour in East Dale Bay, but it is very inconvenient at low water, or at any time after high water, 2125, 2126——Estimated expense of a pier, 2129——Dale Bay would be the best position in the Milford Roads for a packet station, with a communication to Haverfordwest, 2131–2133——Detention which would arise to vessels bound from Brean Down to Waterford, and also to Cork, calling at Dale Bay, 2134–2144——A vessel bound to Cork with the prevailing winds would make Barry Island just to the eastward of Cork entrance, 2146–2148——Cork harbour is a very efficient and safe harbour to approach; improvement that would be necessary in the navigation, for the purposes of vessels tied to a particular time, 2149–2151——Waterford Harbour is a most difficult navigation by night; nature of those difficulties, 2152–2154——The leading depth of water on the bar is 12 feet, but it is subject to nine feet upon the slightest yaw, 2156——The difficulties spoken of might be easily obviated by the erection of small lights, 2160——Difficulties in the navigation of Cork Harbour after passing the entrance, in going up to land at Passage at night; it might be so lighted as to overcome those difficulties, 2162——Cost of a few local lights, 2163——A landing-place upon the Holy Ground, or up by the Old Barrack, would be a guide to the navigation in the night, 2164——Situation in which witness proposes to place the cross-lights, 2165, 2166——An iron vessel drawing 10 ½ feet of water could not go over the bar in Waterford Harbour at dead low water, and in a gale of wind, 2167–2170.

There is no difficulty in entering Cork Harbour at night when once you see the Roche's light, with the exception of that already spoken of, 2172——The anchorage is very well buoyed and quite sufficient as it is, for daylight, 2173——The difficulties in the approaches of the two ports of Liverpool and Bristol are about equal; there is very little difference in the tide, 2174–2176——Distance from the point where the difficulties of the navigation of Waterford Harbour begin, to the town, 2177——Length of time a steam-packet would require to make the distance, 2178——It would be dangerous to navigate the Waterford river in the dark; hour at which a Post-office packet might calculate upon getting in and navigating the river in safety, 2179–2183——A great objection to the pier

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at Hobb's Point is its position so far from the mouth of the harbour, steam-packets having to run up eight or nine miles against wind and tide to get to it or from it, 2184–2186——It is desirable for Post-office communication that the mail should be carried as far as possible by land, 2187. 2217——Dale Bay is a preferable station to Hobb's Point, 2189——Supposing a Post-office communication to be established with Ireland, witness would say from Dale Bay to Waterford would be the best points, 2190-2194——Wexford is not adapted for a station for mail steam-packets, 2195, 2196——Expense of a pier at Dale Bay, 2197, 2198——Witness is not aware of any steamers latterly being detained getting from Milford to Hobb's Point, 2199, 2200——Whether a Post-office communication from Hobb's Point to Dale Roads would be practicable, 2201–2203——Average length of the passage from Milford Haven to Waterford, 2204——It would be 11 hours under any circumstances in a steam-boat, 2205——Hour at which the Post-office should calculate upon the packet reaching Waterford throughout the year with regard to the navigation of the river, 2206–2208——Witness would prefer stopping at Creden Head, assuming a harbour to be constructed there, 2209–2212——Cost at which it could be done, 2213——If Milford is given up, the north as well as the south shore would be cut out, 2218——There is a very important trade between the ports on the Welsh coast and the South of Ireland, 2219.

Packets starting from Brean Down, stopping at the Mumbles, would be running some risk in thick weather of clearing the Scar-weathers Sands as well as the Nash, 2222——Comparative merits of Dale Bay, the Mumbles, and Brean Down for Post-office packet stations, 2223–2226——To cross from Cardiff to Uphill or Brean Down would require a pier to be constructed at Penarth, or some other point, 2227——The Old Passage is to be effected with much greater regularity than the New Passage, or from Cardiff to Uphill, 2228–2232——There is less danger of irregularity, 2233——The currents at the New Passage are very strong, 2234–2239——A proper description of steam-packet would take an hour crossing from Cardiff to Brean Down, 2240——There is no weather in which an efficient steamer could not get across, there being safe points of arrival and departure on each side, 2241, 2242——Distance from Swansea to Cardiff by land, 2243——Delay that would occur to the letters from Swansea to the South of Ireland being sent round by Cardiff to Brean Down, 2244——Letters from Bristol could not get opposite to Milford Haven by means of a railroad from Bristol to Brean Down, and from thence by a steamer, quicker than by the mail-coach through South Wales, 2245–2250——Next to Dale Bay the Mumbles should be chosen for the departure of the mails, 2251——Whether under the circumstances of there being a chance of a pier being formed by private enterprise at Portishead, witness would recommend Government to incur the expense of a pier at the Mumbles, 2252–2256——Average rate of a powerful steamer down the Bristol Channel, and in crossing the Irish Channel, 2257, 2258——Witness hands in an elevation view of the lighthouse as erected at the entrance of the sea reach of Wyre, leading into Port Fleetwood (*see* Appendix), and makes a statement with reference to the construction and the actual cost and maintenance of the same, *Ev. p.* 116–119.

[Second Examination.]—Marine surveyor to the Admiralty, 3437——Satisfaction expressed at witness's survey of the Mersey and port of Liverpool in 1838, letters, &c., 3438–3444——If Liverpool were without a railroad, it would be the last place on the whole coast that should be selected as a packet station; intricacy and dangers of the navigation, 3445–3447——The Victoria Channel, its origin and character described, 3447–3449——Uncertainty of the navigation exemplified; objections to the floating light; delay of the packets, 3450-3453——There is a belt of sands across the bay; the Rock Channel has but 18 inches at low water great springs; it cannot be used after the half-ebb until half-flood, 3454–3455——In the New Channel there are 10 feet of water over the bar; frequency with which it presents an obstacle, 3456——Distance of the bar from Liverpool, 3457——Management of a steamer outside the bar waiting for the tide; she is not in danger in a gale, but all on board suffer great discomfiture and vexation, 3458–3462.

Liability of Liverpool Harbour to an artificially hazy atmosphere, driven by south-east winds from the manufacturing district, 3452. 3463——Breadth and depth of the New Channel, 3464, 3465——Difficulty of the navigation in bad weather, 3466——The Channel is often so crowded with ships that it is only by the most anxious activity and loss of speed that more disasters have been averted, 3467–3469——Want of a general system of lighting vessels so as to indicate their course; plan suggested by witness, and explained by a diagram, 3470–3476——The difficulty of navigating the approaches to Liverpool Harbour in the dark is one of the greatest objections to Liverpool as a packet station, 3477, 3478——There is no dock or wharf upon the Mersey extending out to low-water mark; a packet cannot lie alongside on as many days in the year as would make a month; great inconvenience sustained, 3479–3482——Mode of getting passengers on board; the packets usually lie at anchor off St. George's Pier now instead of at the North-east buoy, 3483–3485——Mud and silt in the Channel at Liverpool, which adhering to the steps make the embarkation more difficult, 3486–3489——Number of days in a month on which the packet must be detained at the bar, 3490–3493.

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Local tendency to fog off the coast of Lancashire, from Seaforth or Bootle, round towards Southport, 3494–3497——State of the Bristol Channel as regards fog, 3498——General causes of fogs off coasts explained, 3499–3502——Liverpool is ineligible as a packet station as being combined with a commercial port, 3503——Inconvenience sustained by the New York and other packets in having to land their mails at the port of destination; should be able to land them at the first port, and then beat up to Liverpool, 3504, 3505——A small steamer should go out and receive the mails, to avoid the risk of the packets standing in, 3506, 3507——Inutility of building steamers to draw little water in order to suit the harbours; case of the Merlin and Medusa, which were afterwards obliged to be deepened, 3508–3512——The shallowness of the water is a serious objection to Liverpool as a port, 3513——There should never be less than three fathoms water for steamers fit for the Irish Channel, 3514——No other colour distinction but red can be used in lighthouses, 3515, 3516——Evidence as to the navigation into Waterford Harbour in particular winds, 3517–3530——Navigation from Brean Down to Waterford; distance, length of passage, tides at arrival, &c., 3531–3539——Fogs are more likely to arise near Brean Down than Hobb's Point, but at neither place would they offer much obstruction, 3540–3542.

Denham, Captain. Captain Denham's Sailing Directions for the Bristol Channel are very good, but rather complicated, *Drew* 4208, 4209.

Donaghadee. See *Portpatrick and Donaghadee.*

Downshire, Marquess of. Measures taken by the first Marquess of Downshire, when Postmaster-general, for the improvement of the communication between the North of Ireland and the West of Scotland, *Hull* 3743.

Draught of Steam-vessels. Number of feet of water drawn by steamers of 600 tons and 250 horse power, *Price* 638–644——Draught of water of the Government contract steamers, *Cubitt* 3266–3269——Draught of water of an iron and a wooden steamer of 500 tons; draught of the Prince and Princess and vessels of that class at Liverpool, *Edwards* 1959–1963——Draught of water of the iron steamers between Liverpool and Glasgow; their rate per hour, *Napier* 2742–2754.

See also *Iron Steam-boats. Steam Navigation.*

Drew, Captain *John.* (Analysis of his Evidence.)—Haven-master at Bristol, and has known the Bristol Channel for 30 years, 4171–4173——It is a good channel for steamers, but might be much improved by more lights and buoys, 4174–4183——The Great Western has arrived at Kingroad at night in all weathers and times of the tide, 4184–4189——The Irish steamers have to slow their engines for want of water in the Avon, but not on account of the navigation of the Bristol Channel, 4190–4194——The plan of a pier at Portishead is likely to succeed; the situation described, 4195–4199——Vessels have been driven up to Kingroad in the night without knowing where they were, 4201–4204——The Bristol steamers plying to the South of Ireland are not fast; they suit their starting to the tide, 4205–4207.

Captain Denham's Sailing Directions for the Bristol Channel are very good, but rather complicated, 4208, 4209——Points to which Captain Beechey's attention was recently directed, 4210, 4211——There is no great difficulty in the navigation of the Bristol Channel, nor are fogs more prevalent than elsewhere, 4212–4214——The Admiralty yacht Firebrand struck on the Nash Sand, because there was no Bristol pilot on board, 4215, 4216——Witness commanded a sailing vessel for 17 years, and never found any difficulty in navigating the Bristol Channel, 4217–4219——A southern line of communication with Ireland would be of importance to Bristol and to the public generally, 4222——Draught of an iron steamer of 500 tons; the longer it is the less likely it would be to strike in shallow water, 4223–4229——Brean Down would be easy of access with a breakwater, 4231–4234——Fall of the tide at Portishead and at Brean Down; whether a floating harbour would answer at the latter as well as at the former, 4235–4238.

Dublin and Bristol. See *Bristol and Dublin.*

Dublin and Cork. There are morning mails from Dublin to Cork and other towns in Ireland; whether any benefit would arise from the Post-office taking advantage of the conveyances which leave Dublin in the morning for different towns, *Parsons* 1078–1080——Rate of speed of each mail between Dublin and Cork; acceleration of which those mails are capable, *Kendrick* 2589–2596.——*See* also *Cork,* 3. *Cork and Milford.*

Dublin and Holyhead. See *Holyhead and Dublin.*

Dublin and Liverpool. See *Liverpool and Kingstown.*

Dublin and London. See *London and Dublin.*

Dublin and Waterford. See *Waterford and Dublin.*

Dublin Harbour. The bar at Dublin was cleared away four or five years ago, and has never filled up since, *Russell* 2921.

Dumfries and Portpatrick. A road was constructed between Dumfries and Portpatrick by the first Marquess of Dowushire, when Postmaster-general, about the year 1766 to 1768, for the purpose of facilitating the communication between the North of Ireland and the West of Scotland, *Hull* 3743.

Dunmore. See *Waterford*, 2.

E.

East Dale Bay. A vessel from a port in the Bristol Channel bound to Cork or Waterford might call at any hour in East Dale Bay; but it is very inconvenient at low water, or at any time after high water, *Denham* 2125, 2126.——*See* also *Dale Bay.*

Edwards, Captain *John.* (Analysis of his Evidence.)—Harbour-master at Swansea, 1881–1891——Milford Haven is a very good harbour of itself, but the approach is objectionable, particularly in thick weather; when in there is no better harbour; there is great depth of water at the mouth, 1892–1895——The safest place, and the shortest distance for a steam-packet station would be Hobson Pill; that is abreast of Milford town, 1896–1899——There is no accommodation there for landing for steamers; there is a small slip, where they landed formerly in boats before they removed to Pater; reasons for their removing to Pater, 1900–1902——The accommodation at Hobb's Point is good for steamers, but not as safe as it might be for steamers to lie alongside of, 1904——Difficulties in the navigation, in running up the mouth of the harbour to Hobb's Point, 1907, 1908——Unfitness of Dale Bay for steam-packets; there are no landing-places whatever, 1909–1912——The Mumbles would not do in its present state as a station for Post-office packets; a floating breakwater would be most eligible for it; measures that have been taken with the view of placing such breakwater there, 1913–1920——There is no better anchorage ground than that at the Mumbles, 1921——Quarters from which the roadstead itself is entirely protected, 1922——Points at which it is open, 1923–1925——The heaviest gales in the Bristol Channel are generally south-west and westerly, 1924——There is tolerably good water near to Brean Down; the situation is exposed, 1926, 1927——A stone breakwater would be required to render it fit for a packet-station; there is no accommodation whatever for steamers at present, 1928, 1929——If a breakwater were constructed off the Head, near Portishead, it would afford protection to steamers, 1930, 1931.

There are serious difficulties in the navigation between Portishead and the mouth of the Bristol Channel; nature of those difficulties, 1932–1934——The steam-boats out of Bristol always calculate upon starting from Bristol at high water, 1935——It would not be safe to navigate the Bristol Channel between the Holms and Portishead at low water by night, 1936–1939——There would be some risk for a steamer either to go into or leave Brean Down at all times of the tide, 1941——A light upon the Culvers would assist in getting in, and would be useful to navigation generally, 1942, 1943——If steamers starting from Portishead or Brean Down were to call at Milford or Dale Bay for the Welsh mail-bags it would be attended with a vast loss of time, 1944——Time that would be lost in taking Dale Bay in going from Brean Down to Waterford; calling at Hobson Pill would make an additional hour in and out, 1945–1947——Difference that running up to Hobb's Point would make, 1948——A steam-packet of 500 tons and 250 horses power, with no cargo, would take about nine or nine and a half hours to run from Portishead to Hobb's Point; time that would be taken in bad weather, 1949–1953.

The worst of the passage for sea is between Milford and Waterford, 1954——The average passage from Brean Down to Waterford with the class of boats spoken of would be 20 hours, 1956——From Portishead it would be about 20½ or 21 hours; it is impracticable for a steamer of any draught of water to leave Portishead at night, 1957, 1958——Draught of water of an iron and of a wooden steamer of 500 tons; draught of the Prince and Princess, and that class of vessels at Liverpool, 1959–1963——There would be no difficulty in navigating the Waterford river in any state of the tide with an iron steamer drawing nine feet of water, 1964——The average length of the passage from Brean Down to Cork would be 24 or 25 hours, and under favourable circumstances about 20 hours, 1965, 1966—To Waterford 15 hours, and an additional hour from Portishead, 1967, 1968——A steamer of this description would steam about eight miles an hour, taking all risks of weather, 1969–1977.

The Bristol Channel is as accessible as Liverpool; there is a little more fog in the Bristol Channel; witness would prefer going into Brean Down to going into Liverpool Harbour, 1978–1981——The Channel of Liverpool cannot be made out of a dark night; its uncertainty; breadth of the Channel inside the Bell-buoy; depth of water upon the bar at low water; the same at quarter flood, 1982–1997——A vessel obliged to lie outside the bar for water, is exposed to considerable danger, 1998–2003——Five steam-packets would be required from Brean Down, supposing that were to be adopted as the station

Edwards, Captain *John*. (Analysis of his Evidence)—*continued.*

station to communicate with Ireland; the same number would be required to Cork as to Waterford, 2005, 2006——Three packets would be required from Hobb's Point to Waterford, 2007–2010——Probable detention of a steamer starting from Portisbead, bound to Waterford and calling at the Mumbles for bags, 2111, 2112——Description of coal consumed by the packets from Hobb's Point; relative strength of that coal and Swansea coal; prices of the coal in use and of Swansea coal, 2013–2019——There is no harbour at Cardiff calculated for Post-office purposes; a harbour could be made, 2021–2023——Locality at which witness would recommend the harbour to be constructed; breadth of the Channel at that part, 2024–2026. 2028–2031——Probable expense, 2025——A proper steamer would take from an hour and a quarter to an hour and a half to go from Cardiff to Brean Down, 2027——Breadth of the ferry across the Severn at Old Passage; it is the lowest ferry in the Channel, 2032–2039——Improvement that might be made in the landing-places at the Old Ferry, 2040——Witness produces and lays before the Committee papers relating to the trade of Swansea, *Ev. p.* 102.

Electrical Telegraph. Advantages of the electrical telegraph explained and illustrated, *Bidder* 3698——Its peculiar advantages in connexion with a packet station, *Ib.* 3699——Explanation of the mode of working a single line of railway aided by the telegraph, *Ib.* 3700–3702——The electrical telegraph is not liable to get out of order; complex arrangements on the Blackwall Railway noticed in proof of this, *Ib.* 3703.

Evans, Captain *George*, R. N. (Analysis of his Evidence.)—Was appointed in 1835 and 1836 to examine into the Post-office Packet Department, 228, 229——Reported that the packets should be removed from Milford to Hobb's Point, where a pier should be built, and should go to Waterford Quay instead of Dunmore, all which has been done, 230–231——He stated that the packets on that station were the worst of any between England and Ireland, although they had the most difficult passage to perform, 232——The shorter the distance by sea, the more regular the mails, and Hobb's Point is therefore advantageously situated, 233–235——At Portishead the current is so rapid, that a pier would soon be filled up; witness cannot offer an opinion as to the stability of a floating pier, 236–238——Supposing two harbours made, one at Brean Down and the other at Portishead, the former would unquestionably be the best point of departure for the South of Ireland, 239–243——Good steamers could make the voyage regularly between Brean Down and Waterford, but not so regularly as between Liverpool and Kingstown, as the water is less smooth, 244, 245——Comparative distance of Brean Down and Milford from Waterford, and difficulties of each voyage, prevailing winds, heavy sea, &c. 246–254——The tide in the Bristol Channel would not offer much obstruction, as it would as frequently be favourable as adverse, 255–259——As ports, Cork and Waterford are equally eligible for the class of vessels required, especially iron steamers; Cork is the most approachable at all times of the tide, 264–268.

[Second Examination.]—There is no difficulty whatever in the navigation to Hobb's Point; it is the most eligible station for packets to the South of Ireland, 269–275——Vessels of 500 or 600 tons and 250 or 300 horse power should run on that station; probable length of the voyage; exposed character of the station, 276–278——Small number of passengers, and want of accommodation for them, 279–281——From the mouth of the Bristol Channel to any part of Ireland, the same vessel that would average ten miles an hour from Holyhead to Kingstown would not average more than eight, 282–288——This calculation includes deviations and detention by contrary winds and heavy gales, 289–291——The greater the length of the voyage the more irregular will it be, 292–294——Great improvements since 1827 in steam navigation; the speed of river boats has been doubled, but not of sea boats, 295–303——Eight miles an hour is a fair average between the Bristol Channel, and ten between Liverpool and Dublin, 304–307——Cork is an easier harbour than Waterford; the landfall is good, and the entrance easy of access by day and night, 308, 309——Effect of Waterford bar in a fog upon the navigation to that port; there are two good lighthouses before you come to the bar, 310–314.

[Third Examination.]—At Milford a boat could not always get on board a steamer with passengers and mail, but could at Dale Bay, 779–783——The detention of a steamer sailing from Portishead or Brean Down to Waterford would be from one to two hours, according to the weather, 784——In sailing to Cork the course would be more to the southward, and further from Milford, 785, 786——The road from Carmarthen to Dale Bay would be through Haverfordwest, 787–789——Road to Hobb's Point, 790–792——A pier would be required at Dale Bay, and must be built by Government; there is no town connected with the roadstead, 793–797——A pier was built at Hobb's Point by Government, at a large outlay, 798, 799——Rate of speed of a steamer down the Bristol Channel and of a mail-coach along the road to Milford compared, 800–802——The detention of a vessel bound for Cork or Waterford would be an hour or two more in touching at Dale Bay, 803, 804——Longest, shortest, and average time that would be spent in the voyage from Portishead to Hobb's Point, including the transit of the mail by land from Bristol, 805–808.

Evans, Captain *George*, R. N. (Analysis of his Evidence)—*continued.*

Length and time of the land journey from Bristol to Milford; letters would be conveyed quicker by steam, 819-824——Two hours and a half would be saved by conveying letters to Brean Down, 825——Distance from Portishead to Milford Haven, 826——Approval of the report and plan of the harbour of Holyhead by Sir James Gordon and Captain Beechey, 827-831——Objections to Port Dynllaen Bay as a packet station, 832——Safety of the harbour of Holyhead; singular means of knowing the position of a vessel in foggy weather, 833, 834——Comparison of the winds and tides encountered in sailing from Holyhead and from Port Dynllaen, 835-837——Holyhead Harbour must be enlarged if large steamers were on that station, 838——Propriety of transferring the station from Portpatrick and Donagbadee to Cairn Ryan and Loch Larne, 839-844——Reasons for preferring Larne to Belfast as a packet station, 845-851.

F.

Falmouth and Cork. A letter from Falmouth for Cork, *viâ* Weston-super-Mare, traced; time would be saved by that route, *Maberly* 3049, 3050.
See also *Falmouth and Waterford.*

Falmouth and Gibraltar. The mails between Falmouth and Gibraltar have varied only 12 hours twice in two years, *Willcox* 2823. 2826-2831——Vessels would not be more subject to detention in the Bristol Channel, *Ib.* 2825.

Falmouth and Kilkenny. Supposing packets to be established from the Bristol Channel to Waterford, letters from Falmouth to Kilkenny would still go by Dublin; no advantage would be gained by going by Waterford, *Kendrick* 2618——It would be an advantage to towns south of Kilkenny, *Ib.* 2619. 2633.

Falmouth and Waterford. Time occupied by the present arrangement and by the contemplated one, with respect to letters from Falmouth to Waterford, *Stow* 2463——The same with respect to Falmouth and Cork, *Ib.* 2464.

Floating Breakwaters. Floating breakwaters are not applicable to any place which has a material rise of tide, *Denham* 2079——Depth proposed by witness for a breakwater; it depends upon the anchors and cables for holding; depth of the agitation of the sea; average inclination or elevation of a beach, *Tayler* 2297-2310——Principles on which witness forms his breakwater; general principle on which floating breakwaters are formed, *Ib.* 2302, 2303——Useful properties of a new glue tried by the Admiralty at Woolwich; its adoption in the construction of breakwaters recommended, *Ib.* 2303——Scale of an experiment conducted by witness at Plymouth; its success, *Ib.* 2304-2307——In shallow water there is less resistance than in deep water; there is not a greater ground-swell in shallow water than in deep; depth of waves, *Ib.* 2307, 2308.

Floating breakwaters would be perfectly efficient to enable vessels to lie in safety and to land passengers; witness has never seen one in operation, *Napier* 2703, 2704——There would be no difficulty whatever in mooring them in safety, *Ib.* 2705, 2706——Materials of which the sections of a floating breakwater may best be made; peculiarities of witness's invention; duration of moorings, &c., *Tayler* 4141, 4142——Experiments tried with models of the floating breakwater, *Ib.* 4145-4149——Opinion of members of the Admiralty Board and of the Trinity Board concerning the invention, *Ib.* 4150-4158——The French are likely to be the first to try the plan for the formation of harbours of refuge, *Ib.* 4154——No work is yet in progress; they are waiting for the third reading of the Bill before Parliament, *Ib.* 4155.

The superiority of the floating breakwater to stone piers is particularly shown where there is a great rise and fall of the tide, *Tayler* 4159——Brean Down would be a fair place for trying it; the late Government offered anchors and moorings to try it at Brighton; Government has stores applicable to the purpose, *Ib.* 4160-4162——Expense of each section; length thereof, *Ib.* 4163-4165——Reasons for not proceeding with the experiment at Brighton, *Ib.* 4166——The old anchors lying idle in the dockyards might be used, *Ib.* 4167.——*See* also *Plymouth Breakwater. Tayler*, Captain.

Floating Bridges. The objection to steam floating bridges, where they have to cross any estuary liable to considerable roughness of waves, that there would not be sufficient buoyancy, owing to the weight of chains, is no longer a matter of opinion; it is not so, *Rendel* 2993——The heavier chains bear no proportion to the tonnage of the vessel; comparison with a first-rate, moored head and stern; practical results as exhibited at the bridge at Tor-Point, *Ib.* 2994——The bridges are flat-bottomed, *Ib.* 2995——None that have been built draw more than three feet water, and they are very buoyant, *Ib.* 2996——Dimensions of a bridge built for Calcutta, *Ib.*

Fogs. Local tendency to fog off the coast of Lancashire, from Seaforth or Bootle round towards Southport, *Denham* 3494-3497——Fogs are more likely to arise near Brean Down

Down than at Hobb's Point, but at neither place would they offer much obstruction, *Ib.* 3540–3542——The general causes of fogs off coasts, explained, *Ib.* 3499–3502.——*See* also *Bristol Channel*, 2. *Liverpool*, 2.

Frolic, The (Steamer). Loss of the Frolic steamer in the Bristol Channel, *Claxton* 25; *Edwards* 1933; *Denham* 2050.

G.

Gibraltar and Falmouth. See *Falmouth and Gibraltar.*

Glamorganshire. Complaints have frequently been made to the Post-office from different towns in Glamorganshire, of the delays at the Old Passage, and the inconvenience to travellers, *Stow* 2350.

Glasgow and Belfast. Place which witness would recommend as the most desirable harbour for the Scotch mail-boats to run to; reasons in favour of each harbour recommended, *Beechey* 2835, 2836——Inefficiency of the present packets for the service they are employed in, *Boyle* 2971, 2972——Time occupied by a letter in going from Glasgow to Belfast by the present arrangement, *Stow* 3023——Time that would be taken in the event of a mail establishment being formed at Loch Ryan, *Ib.* 3024.

See also *Belfast.* *Loch Larne.* *Loch Ryan.* *Portpatrick and Donaghadee.*

Gordon, Sir *James.* See *Holyhead*, 3.

Gore, J. Ormsby. See *London and Dublin.*

Great Western Railway. Rate at which the mail travels on this line; the distance to Bristol is 118 miles; time taken by the mail train from London, *Stow* 2540–2544.

Great Western Steam-ship. The Great Western steam-ship has made 22 voyages out and home, and has come up to Kingroad at all times of the tide, by day and by night, without the delay of an hour, *Claxton* 8–14——The Great Western has arrived at Kingroad at night in all weathers and times of the tide, *Drew* 4184–4189.

Green Grounds, The. The Green Grounds lie inside the roadstead at Mumbles Head; they have proved fatal to several vessels of late years, *Denham* 2115, 2116.

H.

Hammond, John. (Analysis of his Evidence.)—Commands one of the mail-packets at Hobb's Point, 3986–3988——Once last winter the mail could not be embarked; no steamer could have gone to sea on that day, 3989–3994. 4015——Last year the packets reached Hobb's Point 12 times, too late for the mail-coach; nine of these occasions would have been avoided with efficient packets, 3995–4005. 4056–4060——Class of steamers recommended for the Milford and Waterford station, 4006–4010——When you make St. Ann's Lights there is no difficulty in getting into Milford or up to Hobb's Point, 4011, 4012——In clear weather you can go right up to Waterford in the night and at low water, 4013, 4014——The packets should not draw more than nine feet water; there is sometimes as little as nine feet in Waterford River, 4015–4019——The steamers are repaired at the dockyard, with a few exceptions, 4020——The Scotch coal is found to answer better than the Welsh with the present boilers, 4021–4023.

It would be practicable for Bristol and Waterford steamers to pick up the mail at Dale Bay; three hours would be lost; there is no landing-place, and in a south-east wind a landing could not be effected, 4024–4032——If more passengers went by way of Milford there would be accommodation for them, 4033, 4034——Dale Bay dries at low water a long way out; in south-west winds there is a heavy ground-swell, 4035–4039——Waterford Harbour would not admit very large steamers at low-water spring-tides, and such vessels therefore would not be more fit for Brean Down than for Milford, 4040–4046——Average passage from Hobb's Point to Waterford; probable saving of time by better steamers, 4047–4050——The inconvenience of the long land journey through Wales deters passengers from taking the Milford line, 4051–4055——If the boilers were so constructed as to allow the use of Welsh coal a great saving would be effected, 4062–4069——Four good steamers might do the duty, but it would be desirable to have a fifth, 4070–4077.

Margin that should be allowed for irregularities between Milford and Waterford, 4378. 4092–4098——Between Brean Down and Waterford double the allowance of margin would be necessary, 4079, 4080. 4099——Milford Haven answers well as a packet station and Hobb's Point for a mail communication, 4081–4084——A vessel drawing nine feet would never be stopped at Waterford, and larger vessels could always get in if they arrived at five or six in the morning, 4085–4091——Average rate of sailing calculated upon with good steamers, 4100–4103——Relative speed of large and small steamers, 4104–4110——Time in the morning most convenient for reaching Waterford, 4111–4118. 4122–4124——The steamers frequently cross from Milford without a passenger, and the quantity of letters is inconsiderable, 4119–4121.

HOBB'S POINT:

1. *Generally.*
2. *Whether eligible for a Packet Station; Works carried out by the Government with a view of rendering it fit for the Purpose.*

1. *Generally:*

The shorter the distance by sea the more regular the mails, and Hobb's Point is therefore advantageously situated, *Evans* 233–235——A considerable correspondence from the South of Ireland passes by Hobb's Point for South Wales, the South of England, the West Indies, and all parts of the globe; the return correspondence comes round by Dublin, *Parsons* 1002, 1003. 1007. 1023——The abolition of the packet communication by Hobb's Point would create delays, *Kendrick* 2652–2654.

2. *Whether eligible for a Packet Station; Works carried out by the Government with a view of rendering it fit for the Purpose:*

Vessels can come alongside the pier at Hobb's Point at all times of the tide, but not in all weather, *Claxton* 189–191——Proper steamers could make their passage with greater regularity from Hobb's Point than from any point in the Bristol Channel, *Ib.* 192, 193——With a heavy sea, and wind west-south-west and west-north-west, the pier at Hobb's Point cannot be safely approached, *Ib.* 198–203——Witness, who was appointed by the Government to examine into the Post-office Packet Department in 1835 and 1836, reported that the packets should be removed from Milford to Hobb's Point, where a pier should be built, and should go to Waterford Quay instead of to Dunmore; all which has been done, *Evans* 230, 231——There is no difficulty whatever in the navigation to Hobb's Point; it is the most eligible station for packets to the South of Ireland, *Ib.* 269–275——Nothing is wanting at Hobb's Point to render it a fit station for packets, *Stow* 389–392——A pier was built at Hobb's Point by Government, at a large outlay, *Evans* 798, 799.

Considerable delay sustained at Hobb's Point; inefficiency of the present packets, *Parsons* 1097–1100——Arrangement proposed by which twelve hours might be gained, *Ib.* 1101–1109——Inefficiency of the present establishment at Milford; merits of Hobb's Point as a packet station, *Ib.* 1563–1567——The accommodation at Hobb's Point is good for steamers, but not as safe as it might be for them to lie alongside of it, *Edwards* 1904——Difficulties in the navigation in running up the mouth of the harbour to Hobb's Point, *Ib.* 1907, 1908——A great objection to the pier at Hobb's Point is its position so far from the mouth of the harbour; steam-packets having to run up eight or nine miles, against wind and tide, to get to it or from it, *Denham* 2184–2186——Witness is not aware of any steamers latterly being detained getting from Milford to Hobb's Point, though there were instances formerly, *Ib.* 2199, 2200.

See also *Brean Down.* *Bristol and Milford.* *Dale Bay*, 1. *Milford.*

Hobb's Point and Cardiff. See *Cardiff and Hobb's Point.*

Hobb's Point and London. See *London and Hobb's Point.*

Hobb's Point and Portishead. See *Portishead and Hobb's Point.*

Hobb's Point and Waterford. Inefficiency of the existing line of communication; causes thereof; improvements necessary to render it efficient, *Rep.* v.——Distance from Hobb's Point to Waterford; number of hours' passage at present, and with good steamers, *Claxton* 185–188. 204, 205——Time that would be occupied in making the passage from Hobb's Point to Waterford with a new establishment of good packets, *Parsons* 1148–1150——If a proper line of packets were put on, the passage to Waterford could be made with greater certainty and regularity from Hobb's Point than from Brean Down, the passage being shorter; the danger of fogs would not be less at Milford than in the Bristol Channel, *Moriarty* 1850–1853——Three packets would be required from Hobb's Point to Waterford, *Edwards* 2007–2010——A great deal of the irregularity in the passage might be obviated if proper packets were established between Hobb's Point and Waterford, *Parsons* 1095, 1096——Cause of the irregularity in the departure of the packet from Hobb's Point for Waterford; acceleration that might be made in the arrival of the mail at Waterford, *Stow* 2391–2395.

The packets from Hobb's Point to Waterford are very useful to the district lying westward of a line from Worcester to Bristol, and the country 40 or 50 miles round Waterford, *Mabery* 3095, 3096——Effect of accelerating the mail by Hobb's Point to Waterford, so as to reach the latter place at six in the morning, *Ib.* 3132——Effective steamers from Hobb's Point to arrive at Waterford at six in the morning would be a great convenience, *J. Williams* 3868–3871——Class of steamers fit for running between Hobb's Point and Waterford; they could enter the harbour at all times of the tide, and in

Hobb's Point and Waterford—continued.

in the dark, *J. Williams* 3872–3877——Average passage from Hobb's Point to Waterford; probable saving of time by better steamers, *Hammond* 4047–4050.

Return of the hours at which Her Majesty's mail steam-packets have left Hobb's Point and Waterford respectively; the number of hours occupied in the passage, specifying the days on which the mail has been detained beyond the fixed time; the length of detention, and the cause thereof, *App.* 259–264.

See also *Bristol and Waterford. London and Waterford. Milford and Waterford. Swansea and Waterford. Waterford. Waterford and Hobb's Point.*

Hobson Pill. The safest place and the shortest distance for a packet station would be Hobson Pill; that is abreast of Milford town, *Edwards* 1896–1899——There is no accommodation there for steamers to land; there is a small slip, where they landed formerly in boats, before they removed to Pater; reasons for their removing to Pater, *Ib.* 1900–1902.

See also *Brean Down*, III. 4.

HOLYHEAD:

1. *Generally.*
2. *Its Merits as a Packet Station compared with Port Dynllaen.*
3. *Improvements necessary for making the Line efficient; estimated Expense thereof.*

1. *Generally:*

Serious inconvenience would result to the trade between South Wales and Ireland if all the letters between those two countries were sent round by Holyhead; the intercourse is very great, *Parsons* 1559——A line of railway to Holyhead, and packets thence to Dublin, and a line of railway from Dublin to Kilkenny, for which a Bill has been obtained, would be a preferable line of Post-office communication with the South of Ireland to the line to Cork or Waterford by packets from some point in the Bristol Channel; grounds on which that opinion is formed, *Webb* 1683, 1684——There is no mail from Bristol to Waterford or Cork by Holyhead, *Stow* 1872——The route to Dublin *viâ* Holyhead or Port Dynllaen would beat any route to the South of Ireland *viâ* Waterford or Cork, *Cubitt* 3320–3328——Holyhead might be made to serve as a packet station and also as a harbour of refuge; whether some better place might be found, *Ib.* 3356–3358——By way of Holyhead or Port Dynllaen, letters might pass between Dublin and London within 17 hours; letters then might be answered on the same day; immense importance of such an arrangement, *Pim* 3394–3400——The establishment at Holyhead is very expensive, and a dead loss, *Ib.* 3418, 3419.

2. *Its Merits as a Packet Station compared with Port Dynllaen:*

Safety of the harbour of Holyhead; singular means of knowing the position of a vessel in foggy weather, *Evans* 833, 834——Comparison of the winds and tides encountered in sailing from Holyhead and from Port Dynllaen, *Evans* 835–837——Information already existing as to the relative merits of Holyhead and Port Dynllaen, *Cubitt* 3225–3230——Comparative merits of Holyhead and Port Dynllaen with reference to the length of voyage, direction of winds, &c., *Ib.* 3295–3308——There are not yet sufficient data for determining upon the relative merits of Holyhead and Port Dynllaen, *Pim* 3401–3405——The whole question is narrowed to the two points of Holyhead and Port Dynllaen, and it ought to be determined by competent persons, *Ib.* 3407–3410.

3. *Improvements necessary for making the Line efficient; estimated Expense thereof:*

Approval of the report and plan of the harbour of Holyhead by Sir James Gordon and Captain Beechey, *Evans* 827–831——Holyhead Harbour must be enlarged if large steamers were on that station, *Ib.* 838——To make the Holyhead line efficient 83 miles of railway and improvements in the harbour are required, *Cubitt* 3231–3234——Evidence as to the capability of the present harbour to be improved and extended so as to admit a large class of packets, *Ib.* 3235–3245——Addition to the existing harbour proposed; doubts as to the possibility of making it sufficient by dredging, *Ib.* 3246–3265——Probable expense of a railway to Holyhead, and an improved harbour, *Ib.* 3270–3278——A railway to Port Dynllaen, together with a harbour fit for a packet station, would not cost less than 3,000,000 *l.*, *Ib.* 3279–3281——There would be increased trade and traffic at Holyhead if there were an improved pier and a railway, *Ib.* 3287–3289——Estimated expense of improving the harbour observed upon, *Ib.* 3290–3294.

Relative merits of different lines of railway to Port Dynllaen, *Cubitt* 3309, 3310——A railway to Holyhead or Port Dynllaen would be a work of great national importance; it would not remunerate private speculators; part should be undertaken by the public, *Ib.* 3329–3335——It would be the most perfect communication of all, with all parts of Ireland, *Ib.* 3336——The concentration in one line, either by Holyhead or Port Dynllaen, of all the traffic and correspondence, is the cheapest and most eligible plan, *Ib.* 3359–3363.

HOLYHEAD—continued.

3. *Improvements necessary for making the Line efficient; estimated Expense thereof*—continued.

A railway to Holyhead, worked by locomotive engines, could not be remunerative without assistance from Government, *Pim* 3411——Great importance to trade of having a barbour of refuge at Holyhead; large annual loss of property by shipwreck, *Pim* 3420, 3421——Holyhead Harbour is capable of improvement at no great expense; the late Mr. Rennie's Report referred to, *Stephenson* 3719–3723.

See also *Bristol and Milford.* *Chester and Holyhead,* or *Port Dynllaen.* *London and Cork.* *Port Dynllaen.* *Portishead,* 1.

Holyhead and Dublin. Average passage from Holyhead to Dublin; total time to be occupied between London and Dublin, *Cubitt* 3317–3319.

See also *Bristol Channel,* 2. *Liverpool and Kingstown.* *London and Dublin.* *Southern Line of Communication with Ireland.* *Swansea and Waterford.*

Hull, Edward. (Analysis of his Evidence.)—Collector of Customs at Falmouth, 3742——Portpatrick and Donaghadee have always been the ports of communication between the West of Scotland and the North of Ireland; opening of a road from Dumfries to Portpatrick in 1766 by the first Marquess of Downshire; exertions of that nobleman and his successors to improve the communication with Ireland, 3743——Unsuccessful attempts to remove the packets to other stations; reports and opinion in favour of Portpatrick and Donaghadee; improvement of those harbours in 1820, *Ib.*——Superiority of Portpatrick and Donaghadee to Lough Ryan and Larne as packet stations; relative distances, length of voyage and land journies to different towns, *Ib.*——Present state of Donaghadee Harbour; accommodation for steamers of all sizes at all times of the tide, 3745–3747——Excellence of the landing; the harbour was planned by the late Mr. Rennie, and is perfect, 3748, 3749——Improvements in progress at Portpatrick; there is perfect accommodation for the present vessels, 3750, 3751——No inconvenience has been felt by the public from the present packet station, 3755, 3756——Prevailing winds at Portpatrick, 3757——Witness is one of the commissioners of Portpatrick Harbour, 3758, 3759.

I.

Intercourse between Great Britain and Ireland. Expenses thereof to be regarded rather as an outlay for national purposes, than for the advantage of any particular department, *Rep.* iii.——The whole Irish correspondence last year did not pay its expenses; this year the receipts will be a little more than the expenditure, *Maberly* 3110——Margin that should be allowed in Ireland for the arrival of the packets, according to the relative importance of the local and of the English letters, *Ib.* 3125–3130.

See also *Northern Line of Communication with Ireland.* *Southern Line of Communication with Ireland.*

Irish Channel. The passage across the Channel is well lighted by the Wexford and Milford shores, *Price* 627——A tower might be built at the Saltees, instead of a floating ship, *Ib.* 628——Navigation of the Irish sea in a heavy gale of wind dead a-head, *White* 1245, 1246.

See also *Regularity of Post-office Communication.* *Wrecks.*

IRON STEAM-BOATS:

1. *Their Superiority to Wooden Vessels.*
2. *Comparative Cost.*
3. *Their fitness for the Service of Post-office Packets.*

1. *Their Superiority to Wooden Vessels:*

They are superior to wood in every respect, *Napier* 2661——Iron vessels are suitable for every where, and every purpose, *Ib.* 2664——Iron vessels are divided into different compartments; they are not liable to burn or spring a leak, *Ib.* 2673——Improvements introduced by witness, for which he has taken out a patent, *Ib.*——For speed and regularity, steamers should be built of iron; iron vessels are one-third lighter than wooden vessels, *T. A. Smith* 2790——Draught of an iron steamer of 500 tons; the longer it is, the less likely it would be to strike in shallow water, *Drew* 4223–4229.

2. *Their comparative Cost:*

Estimated cost of an iron vessel of 500 tons and 250 to 300 horse power, *Napier* 2674; *Willcox* 2816——The cost of the engine is about 50 *l.* per horse power, and of the hull about 15*l.* per ton, *Napier* 2679, 2680——The cost of vessels built of iron is rather more than wood; there is very little difference, *Ib.* 2760, 2761.

IRON STEAM-BOATS—continued.

3. *Their fitness for the Service of Post-office Packets:*

Three packets would be required to keep up a daily communication efficiently at a distance of 176 miles, at a cost of 100,000 *l.*, *Napier* 2676, 2677——An iron vessel drawing nine or ten feet water, adapted to the purpose of carrying a mail across the Irish Channel, could cross a river bar with 12 feet water at the lowest spring-tides, *T. A. Smith* 2777——A vessel of 500 or 600 tons would be an appropriate vessel for the Irish Channel; estimated cost of such a vessel built of iron, *Ib.* 2778–2785.

See also *Draught of Steam-vessels. Steam Navigation.*

K.

Kendrick, James. (Analysis of his Evidence.)—Surveyor of the General Post-office for the Southern district of Ireland, 2546——Extent of this district, 2547–2551——The communication between London and Cork at present is about 42½ hours by Dublin, 2553——It would be a benefit to Cork, and some towns to the west of Cork, if the Post-office communication reached Cork in 30 or 32 hours instead of 42 hours, 2553–2557. 2591——Complaints have been made of the delay under the existing arrangements, 2558——Advantage that would result if there was a communication from London to Brean Down by the Great Western Railway, and by adequate steamers from thence to Cork, 2559–2563——It frequently happens that the mail does not arrive in Cork in the winter in time to answer the correspondence on the same day, 2564——Hour at which the mails from Cork to Clonmel are dispatched, 2565—To Tralee, 2566–2568—To Limerick, 2567——A great many ship letters come from Cork by ships from abroad, 2574——Great difficulties are found from the present insufficient communication in transmitting those letters to England, 2575——There is a very small Post-office communication between Waterford and Cork, 2576–2578.

Route by which the Youghal letters are received from England, 2579——Time consumed in the Post-office communication by the night mail from Waterford to Cork, 2580, 2581——Route by which letters go from Waterford to Cork, 2582——Time occupied by a letter in reaching Tralee from London; route by which transmitted, 2582–2587——Letters west of Cork go by the mail from Dublin, which arrives at eight o'clock, 2588——Time taken by each mail from Dublin to Cork; acceleration of which those mails are capable, 2589, 2590——Distance from Dublin to Cork by the shortest mail-coach route, 2592——Rate of travelling per hour, 2594, 2595——Distance from Dublin to Cork by Waterford and Youghal, 2596——Districts which would be affected by or are indifferent to the change or the selection of the port of departure, whether it be from Cork or Waterford, 2598–2608——Waterford is best adapted to Post-office purposes, considered geographically; it would be more central than any other port with reference to the circulation of the mails, 2609–2616——The passage will be shorter to many of the towns to the eastward of Cork by going through Waterford, 2617.

Supposing packets to be established from the Bristol Channel to Waterford, letters from Falmouth to Kilkenny would still go by Dublin; no advantage would be gained by going by Waterford, 2618——It would be an advantage to towns south of Kilkenny, 2619. 2633——It would be an advantage to Cork and the west of Cork, speaking of the correspondence from the West of England, independently of the London letters, 2620——The arrival of the Milford mail at Waterford at nine in the morning instead of 12 at noon, would be an advantage to the towns on the line between Waterford and Cork, and to Cork itself, 2621–2623——The arrival of the packet at Waterford at 12 o'clock at night, so that letters leaving London on Monday night would be in Waterford the following night, and in Cork the following morning, would be an advantage over the present arrangement through Dublin, but it could not be done, 2624–2626——The delivery of letters in Cork at eight o'clock in the morning is all that the merchants would require, 2627–2631——A communication by Dublin would be more certain than through the Bristol Channel, in consequence of the shorter sea passage, 2632——Tralee under the present arrangement would not be served with its London correspondence by Waterford, 2636——There would be no important advantage to Waterford in having a direct communication by Brean Down, 2640——It would be no advantage to Cork, 2641, 2642——If the acceleration by Dublin did not take place it would be an advantage, 2643——Comparative amounts of money received in Cork and in Waterford upon letters received and sent, 2646——If the mail were expedited by six hours, as stated, by Dublin, that would bring the West of England correspondence with equal advantage to Cork as the proposed arrangement by Brean Down, 2650——The abolishment of the packet communication by Hobb's Point, or some other point in the Bristol Channel, would create delays, 2652–2654——Very few letters are received from Bristol by Hobb's Point, 2654.

Kilkenny and Falmouth. See *Falmouth and Kilkenny.*

Kingroad. See *Bristol Channel.*

Kingstown and Holyhead. Report of an experimental trip made by the Princess Royal steamer, from Kingstown to Holyhead, and from Holyhead to Kingstown, on 20th June 1842, *App.* 271, 272.——*See* also *Liverpool and Kingstown.*

Kingstown and Liverpool. See *Liverpool and Kingstown.*

L.

Larne. See *Loch Larne.*

Lighthouses. Lights are not erected where the Trinity Board would at this moment cheerfully erect them, because they are unable to put on a toll unless a petition for the light comes from the owners of vessels as well as the masters; evils of this system; indifference existing on the subject, *Denham* 2063, 2064. 2066*–2068——Funds possessed by the Board for erection of lighthouses, *Ib.* 2065——In the case of private lights, there is no right to impose a toll except from the actual vessels using the port such light belongs to, and which the Harbour Bill provides for, *Ib.* 2066.

No other colour distinction but red can be used in lighthouses, *Denham* 3515, 3516——A green light is not distinguishable beyond five miles as a green light, but it is as a white light, *Willcox* 2794, 2795.

Lighting of Vessels. It would be possible to have a law compelling all steam-vessels to carry the same description of lights, and sailing-vessels a white light, *Willcox* 2796, 2797——Want of a general system of lighting vessels so as to indicate their course; plan suggested by witness, and explained by a diagram, *Denham* 3470–3476.

See also *Peninsula and Oriental Steam Navigation Company.*

LIVERPOOL:

1. *Its Unfitness for a Post-office Packet Station.*
2. *Difficulties and Dangers of the Navigation.*
3. *Inconvenience of the present Landing-places for Steam-boat Passengers.*

1. *Its Unfitness for a Post-office Packet Station:*

The route by Liverpool is not desirable, on account of the length of voyage, the inconvenience of the port as a packet station, and the difficulties in navigating the Mersey, *Rep.* iv.——Table showing the number of times that the mail has been put on board the packet at Birkenhead more than 10 minutes later than the appointed time, stating the cause of such delay, from the 15th June 1841 to the 25th February 1842, *Stow* 2527——Number of times that the coaches have been dispatched from Dublin without the mails from England, owing to the foregoing irregularities, *Ib.* 2528——Liverpool is a very bad port for a packet station, *Maberly* 3192——Inconvenience and delays arising from want of water in the river Mersey, Right Hon. *F. Shaw*, 3199–3202——Some port in North Wales would be a much better station than Liverpool, *Ib.* 3204——The port of Liverpool is not good as regards its entrance from the sea, and packets can rarely come alongside the pier, *Cubitt* 3221–3224.

Liverpool Harbour is not likely to be much improved; state of the Victoria Channel, *C. W. Williams* 3433–3436——If Liverpool were without a railroad, it is about the last place upon the whole coast that should be selected for a packet station; intricacy and dangers of the navigation, *Denham* 3445–3447——Ineligibility of the port of Liverpool as a packet station, combined with a commercial port, *Ib.* 3503——Inutility of building steamers to draw little water in order to suit the harbours; case of the Merlin and Medusa, which were afterwards obliged to be deepened, *Ib.* 3508–3512——The shallowness of the water is a serious objection to Liverpool as a port, *Ib.* 3513——There should never be less than three fathoms water for steamers fit for the Irish Channel, *Ib.* 3514.

2. *Difficulties and Dangers of the Navigation:*

The channel cannot be made out on a dark night; its uncertainty; breadth inside the Bell Buoy; depth of water upon the bar at low water and at quarter flood, *Edwards* 1982–1997——A vessel obliged to lie outside the bar for water is exposed to considerable danger, *Ib.* 1998–2003——The difficulties in the approaches of the two ports of Liverpool and Bristol are about equal; there is very little difference in the tide, *Denham* 2174–2176——Draught of water of the largest class packets belonging to the City of Dublin Steam-packet Company, and carrying the evening mail from Liverpool; depth of the harbour at low water; inconvenience suffered, *C. W. Williams* 3425–3428——To be safe, a harbour for such steamers should have 15 or 16 feet at low water, *Ib.* 3429, 3430.

The Victoria Channel, its origin and character described, *Denham* 3447–3449——Uncertainty of the navigation exemplified; objections to the floating light; delay of the packets, *Ib.* 3450–3453——Liability of the harbour to an artificial hazy atmosphere, driven by south-east winds from the manufacturing district, *Ib.* 3452–3463——There is a belt of sand across the bay; the Rock Channel has but 18 inches at low water great springs;

LIVERPOOL—continued.

2. *Difficulties and Dangers of the Navigation*—continued.

springs; it cannot be used after the half ebb until half flood, *Denham* 3454, 3455——In the new channel there are 10 feet of water over the bar; frequency with which it presents an obstacle, *Ib.* 3456——Distance of the bar from Liverpool, *Ib.* 3457——Management of a steamer outside the bar waiting for the tide; she is not in danger in a gale, but all on board suffer great discomfiture and vexation, *Ib.* 3458–3462.

Breadth and depth of the new channel, *Denham* 3464, 3465——Difficulty of the navigation in bad weather, *Ib.* 3466——The crowded navigation exposes packets to inconvenience and danger, in foggy weather or hazy nights, particularly; there is great liability to collision, *Ib.* 3467–3469——The difficulty of the navigation of the river in the dark forms one of the greatest objections to Liverpool as a packet station, *Ib.* 3477, 3478——Number of days in a month on which the packet must be detained at the bar, *Ib.* 3490–3493.

3. *Inconvenience of the present Landing Places for Steam-boat Passengers:*

Discomfort and risk of going in an open boat to the steamer lying in the river, Right hon. *F. Shaw* 3203——There is no dock or wharf upon the Mersey extending out to low-water mark; a packet cannot lie alongside on as many days in the year as would make a month; great inconvenience sustained, *Denham* 3479–3482——Mode of getting passengers on board; the packets usually lie at anchor off St. George's Pier now, instead of at the north-east buoy, *Ib.* 3483–3485——Mud and silt in the channel at Liverpool, which adhering to the steps make the embarkation more difficult, *Ib.* 3486–3489.

See also *Bristol Channel*, 2. *Fogs.* *Liverpool and Kingstown.* *Menai Straits.* *Wexford.*

Liverpool and Kingstown. Causes of the Liverpool and Kingstown packets exceeding their shortest time more frequently than the Bristol packets, *Burgess* 500–504——Delays in the arrival of the mails between Liverpool and Dublin, *Parsons* 1076——Hour at which the Liverpool mail is due in Dublin; time at which the mails are dispatched from Dublin to the interior, *Stow* 2500, 2501. 2509——Average length of the voyage between Liverpool and Kingstown, *Ib.* 2502——Hour at which the mail ought to leave the Mersey and arrive at Dublin; margin allowed for irregularities, *Ib.* 2503–2508; *Maberly* 3115–3119——Average speed of the vessels between Liverpool and Kingstown, *Willcox* 2807.

Explanation of the reasons for fixing the present times of departure for the packets between Liverpool, Birkenhead and Kingstown; effects thereof upon the passenger traffic, *Maberly* 3156–3168. 3188——A Post-office communication by contract packets between Liverpool and Dublin should not be discontinued, even if a quick route between Holyhead and Kingstown were established, *Ib.* 3169–3173——Inconvenience of the present time of the packets sailing from Dublin; improved arrangements suggested, Rt. Hon. *F. Shaw* 3205–3210——The present line between Liverpool and Kingstown is inconvenient for passengers; objections to Liverpool as a packet station, *Pim* 3386–3389——Witness contemplates and suggests the abandonment of the mails through South Wales, and from Liverpool to Dublin, *Bidder* 3678–3680.

Return of the hours at which the contract steam-packets have left the River Mersey, and the number of hours occupied in the passages between Liverpool and Kingstown, and Kingstown and Liverpool, each day since the 1st February 1841, with the name of each packet; also the number of times, specifying the days, the mail and passengers have been conveyed by tender to or from the steamer outside the bar of the Mersey, and the days on which no mail has left Liverpool, and the manner in which the mail and passengers are conveyed from the pier at Birkenhead to the contract steamer, and the expense of the same, *App.* 265–270.

See also *Brean Down*, III. 4. *Bristol and Waterford.* *Chester and Holyhead,* or *Port Dynllaen.* *London and Dublin.*

Liverpool and South Wales. Whether it could be arranged that the letters from Liverpool to South Wales could be dispatched from Liverpool at three in the afternoon, *Stow* 2384–2390.

LOCH LARNE:

1. *Its Capabilities as a Post-office Packet Station, and as compared with Belfast and with Portpatrick and Donaghadee.*
2. *Works necessary to be carried into Execution to render it fit for the Purpose.*

1. *Its Capabilities as a Post-office Packet Station, and as compared with Belfast and with Portpatrick and Donaghadee:*

Reasons for preferring Larne to Belfast as a packet station, *Evans* 845–851——Loch Larne is a very excellent harbour; Belfast is the best harbour for a packet station, *Russell* 2864. 2866——Reasons on which this opinion is grounded, *Ib.* 2867, 2868. 2883, 2884. 2886. 2898——The Maiden Rocks are not in the way of running into Loch Larne; they are well lighted, *Ib.* 2891–2895; *Smithett* 3643, 3644——Depth of water in Loch Larne at low water; nature of the anchorage, *Russell* 2896–2899.

Capabilities of Loch Larne as a packet station, *Boyle* 2935–2950——Respective merits of Larne and Belfast as packet stations with regard to the distribution of letters, *Ib.* 2941–2950——The station being placed at Loch Larne must affect the county of Down in a similar degree with Belfast, *Ib.* 2976——The harbours of Loch Larne and Loch Ryan would be as easily entered throughout the year as Portpatrick and Donaghadee, *Smithett* 3583–3593——Comparative length of the voyages, *Ib.* 3594——The harbours, winds, tides, &c., as applicable to each station, compared, *Ib.* 3595–3613——Peculiarities of the situation of Loch Larne adverted to, *Rennie* 3788, 3789.

2. *Works necessary to be carried into Execution to render it fit for the Purpose:*

Estimated expense of making a landing-place at Loch Larne; no extraordinary expense would be required in making the road good from Loch Larne to Ballymena, a line of road having just been completed, *Boyle* 2954–2956——Improbability, in the event of Loch Larne being made the packet station, of private parties making the necessary landing-places, *Ib.* 2965, 2966——Estimated cost of a pier at Loch Larne, *Rennie* 3785–3787.

See also *Belfast. Cairn Ryan and Loch Larne. Loch Ryan,* 2. *Portpatrick and Donaghadee,* 1. 4.

LOCH RYAN:

1. *Its Capabilities as a Post-office Packet Station.*
2. *Nature of the Passage from Loch Ryan to Loch Larne.*

1. *Its Capabilities as a Post-office Packet Station:*

Loch Ryan would suit very well for the departure of the packets; you can enter at all times of the tide; it is to be preferred to Portpatrick, *Russell* 2871–2873——There is no difficulty in approaching Loch Ryan; a steam-boat would run from Loch Ryan to Belfast quay in four and a quarter or four and a half hours; the same boat would be one hour and a quarter less in running to Larne, *Ib.* 2888–2890——Size and description of vessel witness would recommend between Loch Ryan and Belfast; cost of such vessels and number that would be required, *Ib.* 2923–2932——Capabilities of Loch Ryan as a packet-station; estimated expense of making a convenient landing-place, *Boyle* 2951–2953——Loch Ryan is equally approachable from the southward with Portpatrick; it is an excellent road, *Ib.* 2975.

2. *Nature of the Passage from Loch Ryan to Loch Larne:*

Effect of particular winds in crossing from Loch Ryan to Loch Larne, *Smithett* 3614–3617——There would be smooth water for some miles, both in Loch Ryan and Loch Larne, and there would be no difficulty in getting out, *Ib.* 3634–3640.

See also *Belfast. Cairn Ryan and Belfast. Cairn Ryan and Loch Larne. Glasgow and Belfast. Loch Larne,* 1. *Portpatrick and Donaghadee,* 1. 4.

London and Brean Down. Railway communication between London and Brean Down; length of journey, *Tayler* 4168–4170.

See also *Brean Down,* III. 4.

London and Bristol. See *Bristol.*

London and Cork. Importance of a communication direct from London to Cork, *Parsons* 1138–1141——Most certain and speediest mode of communication from London to Cork, supposing steam-power to be applied to the best advantage, *Webb* 1715, 1716——Witness has delivered the mails in Cork in 27 hours from London; the people of Cork complain very much of the delay of their letters by the ordinary mode of communication, *Moriarty* 1781–1785——The communication between London and Cork at present is about forty-two and a half hours by Dublin, *Kendrick* 2553——It would be a benefit to Cork and some towns to the west, if the communication reached Cork in 30 or

London and Cork—continued.

or 32 hours, instead of 42 hours, *Kendrick* 2553–2557. 2591——Complaints have been made of the delay under the existing arrangements, *Ib.* 2558.

Advantage that would result if there was a communication from London to Brean Down by the Great Western Railway, and by adequate steamers from thence to Cork, *Kendrick* 2559–2563——It frequently happens in the winter that the mail does not arrive in time to answer the correspondence on the same day, *Ib.* 2564——A communication by Dublin would be more certain than through the Bristol Channel, in consequence of the shorter sea passage, *Ib.* 2632.

Course of a letter from London to Cork *viâ* Holyhead (with a railway) and Dublin, *Maberly* 3036——Course back again to London, *Ib.* 3037——Speed and convenience of the route *viâ* Holyhead to Cork, for receiving and answering letters, *Ib.* 3038–3040——Transmission of letters from London to Cork by the morning mail would then be useless, *Ib.* 3041–3044——Course of the night and day mails under this arrangement, to Londonderry, Waterford, and Belfast respectively, *Ib.* 3045, 3046——Letters traced from London to Cork, by night and day mails, *viâ* Brean Down and Waterford, *Ib.* 3047, 3048.——*See* also *Cork,* 1. 3. *Cork and Milford. London and Waterford.*

London and Dublin. Great saving contemplated in the time occupied between those places; general convenience thereof, *Rep.* iv.——Every effort has been made by the Post-office to obtain greater regularity of arrival by the railways, *Stow* 2529——The distance between Crewe and Chester, 21 miles, is run in an hour, but the Grand Junction Company have agreed to do it in 48 minutes, *Ib.* 2530, 2531——Delays that take place on the line from London to Liverpool; acceleration of speed that might be gained, *Ib.* 2532–2537. 3541——Average rate of travelling per hour between London and Birkenhead by the railway, *Ib.* 2538——Time allowed for the embarkation of the mails and passengers at Birkenhead, *Ib.* 2539.

The Post-office arrangements would be simplified by sending all letters by way of Holyhead and Dublin; the day-line by Liverpool might be kept up at a small expense, *Maberly* 3100–3103——Great advantage of a Post-office communication between London and Dublin, both to Dublin and to the interior of Ireland; one despatch a day would be sufficient, *Ib.* 3138–3144——Present arrangements of the correspondence between London and Dublin, *Ib.* 3145–3155——The present arrangements are as perfect as they can be made with existing means, *Ib.* 3174–3184——The packets at Liverpool are sometimes detained by the tide, &c., but very rarely by the railway, *Ib.* 3185, 3186——Objections to an arrangement being made with the Grand Junction Railway Company to start a train on the arrival of the packet from Kingstown, *Ib.* 3187——The traffic of the line by Holyhead, from London to Dublin, would only pay a small portion of its expenses, *Ib.* 3189–3191——If all the correspondence were sent through London and Dublin, there would not be an irksome addition to the work at the main offices, *Ib.* 3196.

Correspondence with a meeting of Members of Parliament, Lord Eliot, and the Admiralty, as to improving the communication between London and Dublin, *Ev. p.* 197–199——The shortest sea-passage is the best line of communication between London and Dublin, *Cubitt* 3216–3219——The Post-office communication of South Wales with Waterford might go by Dublin; London and Dublin should be the great centres, *Ib.* 3337–3342——Means of communicating with Bristol and South Wales suggested, *Ib.* 3343–3355——Inconvenience of the Post-office arrangements between London and Dublin exemplified, *Pim* 3379–3384——Arrival of packets at Dublin too late for the dispatch of the English letters by the inland mails, *Ib.* 3385——The largest part of the London correspondence leaves Dublin at half-past five; they are delayed at Liverpool till seven the next evening, *Ib.* 3390–3391——The morning packet to Holyhead is chiefly for inland letters, and is of scarcely any use to Dublin, *Ib.* 3391–3393——By concentrating the several establishments in one place a great national saving might be effected, *Ib.* 3412——The feeling in Ireland is in favour of some port in North Wales, and that the best should be adopted, *Ib.* 3422——It would be quite practicable to convey the mail from London to Dublin daily in 15 hours, *Bidder* 3682, 3683.

Petition of Mr. J. R. Ormsby Gore, M.P., landowners and others of the county of Carnarvon, respecting the best means of improving the communication between London and Dublin, *App.* 293–303——Replies to certain accusations made against the Naval Commissioners appointed to inquire into the best means of communication between London and Dublin, by J. Ormsby Gore, esq. M.P. and others, in a petition to the House of Commons, 1840; prepared in pursuance of an order of the House of Commons, dated 11th April 1842, *Ib.* 304–310——Letter from Mr. James Perry, dated 17th June 1842, to Lord Ingestre, M. P., on the subject of an improved Post-office communication between London and Dublin, *Ib.* 310, 311.

See also *Central Line of Communication. Chester and Holyhead, or Port Dynllaen. Holyhead. Liverpool. Liverpool and Kingstown. Railways* (Ireland).

London and Hobb's Point. Time bills of the mail from London to Hobb's Point *viâ* Bristol, and from Hobb's Point *viâ* Bristol to London, *Ev. p.* 177, 178——Time bills of the mail from London to Hobb's Point *via* Gloucester, and from Hobb's Point to London, by the same route, *Ib.* 178, 179——Return of the contracts for mileage for the last

London and Hobb's Point—continued.

seven years, separating each year, for carrying the mails by land from London to Hobb's Point, whether by Bristol or Gloucester, *App.* 340.

London and Newport. The transmission of the London mails from Bristol through Gloucester would not affect the letters from the southern or western parts of England, *Stow* 2381–2383——Time occupied by the present arrangement, and by the contemplated one with respect to letters from Newport to London, *Ib.* 2461, 2462.

London and South Wales. Supposing a railway from the Cheltenham and Great Western Railway into Wales, point at which it would turn off, *Rendel* 3010——Distance from London to Newnham, supposing the railway to be constructed; distance thence to Swansea by the Monmouth road, *Ib.* 3011–3014——The line of country is well adapted for a railway; description of country passed through; difficulties existing, &c. *Ib.* 3016–3017——A railway could be carried in safety over the bridge at Newnham without interfering with the navigation of the Severn, *Ib.* 3018, 3019——The best line from London to South Wales would be by way of Gloucester, *Maberly* 3055–3062.

Letter from J. H. Vivian, Esq. M. P. to Lord Ingestre, M. P., dated 26th June 1842, on the subject of the improvement of the communication between London and South Wales, *App.* 312–317.

London and Southampton. Distance in time between London and Southampton, *Stow* 2480.

London and Swansea. The most direct and advantageous line from London to Swansea is through Gloucester and Chepstow; reason of its not having been adopted, *Stow* 2347–2354——If the letters from London are transmitted through Gloucester and Chepstow there must still be a mail communication across the Old Passage from Bristol to Chepstow and Newport, *Ib.* 2367–2373——Bristol letters would be delayed a day by this arrangement, unless a second mail were put on to Gloucester, *Ib.* 2374–2380——Gloucester and Chepstow is the best line to Swansea and Milford; advantages to be gained in accelerating the mails by that line, *Ib.* 2404–2411.

Acceleration that might be made in the mails from Swansea to London, *Stow* 2430–2443——This arrangement would be a great benefit to Newport, *Ib.* 2444, 2446——Alterations in the system of Post-office communication with South Wales that the proposed arrangement would involve, *Ib.* 2446, 2447——A greater saving of time would be effected if the letters for Swansea and Cardiff were landed at the Mumbles from Brean Down or Portishead than if conveyed across the Aust Passage; this would be a serious delay to letters to Newport, *Ib.* 2457–2460.——*See* also *Swansea and London.*

London and Tralee. Time occupied by a letter in reaching Tralee from London; route by which transmitted, *Kendrick* 2582–2587.——*See* also *Tralee.*

London and Waterford. The mail from London to Waterford might have an extension of six and a quarter hours by taking the Brean Down passage, and still be in at the same time as it could from Hobb's Point through Gloucester, with improved packets and proper roads, *Stow* 2471–2476——The arrival of the packets at Waterford at 12 o'clock at night, so that letters leaving London on Monday night would be in Waterford the following night, and in Cork the following morning, would be an advantage over the present arrangement through Dublin, but it could not be done, *Kendrick* 2624–2626——There would be no important advantage to Waterford or Cork in having a direct communication by Brean Down, unless an acceleration by Dublin did not take place, *Ib.* 2640–2643.

Time of arrival of the mail at Waterford and Cork, supposing the Pembroke mail to leave Bristol at two in the morning instead of six, *Maberly* 3078–3082——Contractors could not be found for a mail starting at that time, *Ib.* 3083, 3084——The detention of the London letters at Bristol for a few hours could not be avoided without sacrificing the northern correspondence, which would be very inexpedient, *Ib.* 3085–3087.——The defective state of the Old Passage is one cause of the objection to starting the Pembroke mail in the middle of the night; but in any case, to start at that time would be very expensive, *Ib.* 3088–3094.

Letters from London to Waterford would be conveyed quicker by way of Dublin than by Milford, *Bidder* 3663–3667——The mail from London to Waterford by way of Weston-super-Mare would go about as fast by Holyhead, but would be liable to greater irregularities, *Ib.* 3684–3686——Fifty or 60 times in the course of the year the Dublin mail reaches Waterford without the English letters, *J. Williams* 3878–3881.

See also *Bristol and Pembroke.* *Waterford and London.*

M.

Maberly, Colonel *W. L.*, Secretary to General Post-office. (Analysis of his Evidence.)—The communication between the South of England and the South of Ireland is as good as it ought to be, looking at the amount and importance of the correspondence, 3034——The main circulation to the South of Ireland is by Liverpool and Dublin, 3035——Course of a letter from London to Cork *viâ* Holyhead (with a railway) and Dublin, 3036——Course back again from Cork to London, 3037——Speed and convenience of the route *viâ* Holyhead to Cork, for receiving and answering letters, 3038–3040——Transmission of letters from London to Cork by the morning mail would then be useless, 3041–3044——Course of the night and day mails, under this arrangement, to Londonderry, Waterford, and Belfast respectively, 3045, 3046——Letters traced from London to

Maberly, Colonel *W. L.* (Analysis of his Evidence)—*continued.*
to Cork by night and day mails *viâ* Brean Down and Waterford, 3047, 3048——A letter from Falmouth to Cork *viâ* Weston-super-Mare traced; time would be saved by that route, 3049, 3050.

Course of letters from Swansea to London by way of Cardiff and Brean Down, 3051–3054——The best line from London to South Wales would be by way of Gloucester, 3055–3062——Complaints of irregularities at the Old Passage; the letters could not be taken so regularly from Cardiff to Brean Down, 3063–3067——Letter from Swansea to Waterford by way of Brean Down traced, 3068, 3069——And by Hobb's Point as at present, to Waterford and Cork, 3070–3077——Times of arrival at Waterford and Cork, supposing the Pembroke mail to leave Bristol at two in the morning instead of six, 3078–3082——Contractors could not be found for a mail starting at that time, 3083, 3084——The detention of the London letters at Bristol for a few hours could not be avoided without sacrificing the northern correspondence, which would be very inexpedient, 3085–3087——The defective state of the Old Passage is one cause of the objection to starting the Pembroke mail in the middle of the night, but in any case to start at that time would be very expensive, 3088–3094.

The packets from Hobb's Point to Waterford are only useful to the district lying westward of a line from Worcester and Bristol and the country 40 or 50 miles round Waterford, 3095, 3096——Districts that would derive benefit from the route by Brean Down and Waterford; statement showing the small amount of correspondence; there would be no adequate advantage for an expensive packet station, 3097–3099——The Post-office arrangements would be simplified by sending all letters by way of Holyhead and Dublin; the day line by Liverpool might be kept up at a small expense, 3100–3103——The advantage to South Wales of keeping up the Milford station does not compensate the country for the great expense, 3104, 3105——The people in South Wales would suffer inconvenience in going to Brean Down and thence to Waterford, 3106, 3107——Whether any and what southern communication should be maintained, 3108, 3109——The whole Irish correspondence last year did not pay its expenses; this year the receipts will be a little more than the expenditure, 3110.

[Second Examination.] Margin that should be left at Waterford for the starting of mail coaches after the arrival of the packet from Brean Down, 3111–3114——Margin allowed at Kingstown; number of late arrivals of the packets, 3115–3119——A larger proportionate margin might be necessary on the longer and more exposed voyage between Brean Down and Waterford; but practice would show how much, 3120–3124——Margin that should be allowed in Ireland for the arrival of the packets, according to the relative importance of the local and of the English letters, 3125–3130——Whether the Aust Passage should be improved, or taken into the hands of Government, 3131——Effect of accelerating the mail by Hobb's Point to Waterford so as to reach the latter place at six in the morning, 3132——Saving that would be effected by the abolition of the Milford Station; its expense; value of the correspondence, 3133–3136——There would be no saving if another station at Brean Down supplied its place, 3137.

Great advantage of a Post-office communication between London and Dublin, both to Dublin and to the interior of Ireland; one despatch a day would be sufficient, 3138–3144——Present arrangements of the correspondence between London and Dublin, 3145–3155——Explanation of the reasons for fixing the present times of departure for the packets between Liverpool, Birkenhead, and Kingstown; effects thereof upon the passenger traffic, 3156–3168. 3188——A Post-office communication by contract packets between Liverpool and Dublin should not be discontinued even if a quick route between Holyhead and Kingstown were established, 3169–3173.

The present arrangements of the correspondence between London and Dublin are as perfect as they can be made with existing means, 3174–3184—The packets at Liverpool are sometimes detained by the tide, &c. but very rarely by the railway, 3185, 3186——Objections to an arrangement being made with the Grand Junction Railway Company to start a train on the arrival of the packet from Kingstown, 3187——The traffic of the line by Holyhead from London to Dublin would only pay a small portion of its expenses, 3189–3191——Liverpool is a very bad port for a packet station, 3192——Twenty-two or twenty-three miles by railway should be reckoned as equal to 10 by sea, 3193——The small number of letters sent by Milford shows that that line is not much appreciated, 3194, 3195——If all the correspondence were sent through London and Dublin, there would not be an irksome addition to the work at the main offices, 3196——Course which the South Wales letters would take by the central line, 3197, 3198.

Macartney, George. (Analysis of his Evidence.)—Resides at Lissanuure Castle, Antrim, 3724——Complaints in the county of Antrim of Post-office arrangements, arising out of the times of arrival of the Scotch posts, 3725——The communication should be by Cairn Ryan and Larne, instead of by Portpatrick and Donaghadee, *Ib.*——No outlay would be required at Larne, and a small landing-place is all that is wanted at Cairn Ryan, which might be done by private means, 3726, 3727——Portpatrick and Donaghadee are both bad harbours, and not worth any further expenditure, 3728–3730——Arrangements of the internal correspondence of the county of Armagh at present, and as proposed after the change of the packet stations, 3731–3734.

Menai Bridge. Fitness of the Menai Bridge for railway communication; means suggested to carry trains across, *Cubitt* 3282–3286——Little time would be lost in crossing the bridge by railway, *Ib.* 3311–3313——Difficulty of crossing the Menai Bridge by railway; opinion of Mr. Stephenson, *Pim* 3405, 3406——Proposed mode of carrying the railway carriages over by an endless rope, worked by stationary engines, *Bidder* 3652, 3653.

There would be no danger of the rails being disturbed by oscillation, so as to affect the safety of the trains, *Bidder* 3654, 3655——The bridge would be left open to ordinary traffic, as at present, *Ib.* 3656, 3657——The delay in crossing the bridge would be only 10 minutes, *Ib.* 3658——Menai Bridge might be crossed either by means of an endless rope, or by detaching the carriages, and drawing them over singly by horses; a delay of 10 minutes only would be caused, *Stephenson* 3706–3712.

See also *Chester and Holyhead, or Port Dynllaen.*

Menai Straits. The Liverpool mail boats have sometimes been obliged to put into the Menai Straits for shelter, *Edwards* 1974.

Mersey, The. See *Liverpool.*

Merthyr Tydvil. Advantages that would be gained by the Merthyr Tydvil district by the transmission of its letters by the proper line of packets from Bristol to the South of Ireland, as compared with the existing modes of transmission by Milford, *Claxton* 143, 144.

Mewstone, The. The Mewstone, which is exposed to the agitation of the sea and wind off Plymouth, where westerly winds blow upon an average nine months in the twelve, is formed upon an inclination of 35 degrees, *Tayler* 2302.

MILFORD PACKET STATION:

- I. *Generally.*
- II. *Opinions in favour of and against the Abolition of the Station.*
- III. *Navigation of the Haven.*
- IV. *Present Establishment of Packets:*
    - 1. Their Inefficiency.
    - 2. Passenger Traffic by them.
    - 3. Description of Coal used.
- V. *Description and Number of Packets requisite for the Station.*

I. *Generally:*

If the line of communication were kept up through Milford, a course from Bristol to Cardiff or Newport would be preferable to the present passage to Milford, *Claxton* 175–183——Milford was formerly the most direct communication with the South of Ireland, but railroads have enabled letters to go quicker by another route, *Stow* 410, 411——Persons frequently complain of travelling through Wales from Milford, and of the Old Passage; they would prefer going direct by Bristol, *Price* 649, 650——Rate at which the mail travels through South Wales; the distance is 150 miles; number of hours in which this is performed, *Parsons* 1568, 1569——Detention of the mails by the snow and frost; it occurs oftener than once or twice in the winter, *Ib.* 1578–1582——Milford is the only direct station from that part of England to the South of Ireland; it is very little made use of, *Webb* 1586, 1587——The inconvenience of the long land journey through Wales deters passengers from taking the Milford line, *Hammond* 4051–4055.

II. *Opinions in favour of and against the Abolition of the Station:*

Effect of the discontinuance of the Milford line upon the correspondence of different places adverted to, *Rep.* vii.——In the event of the removal of the packet station to Bristol, letters from South Wales, and all places to the west of Gloucester, would go through Milford to the South of Ireland, *Stow* 402–405——Witness never sends his correspondence to the South of Ireland by the Milford packets if he can avoid it, *W. Smith* 860, 861——There is a greater regularity by the Dublin route than by the Milford line, *Ib.* 864. 933——Uncertainty and delay in the passage of letters by the Milford line; inefficiency of the packets; causes of the delay, *Ib.* 917–920. 944–958——Inutility of the Milford packet station; advantages that would be gained by its removal to Bristol, *Parsons* 1004–1019. 1024–1042. 1113–1116. 1159–1163——The present channel of communication is the most convenient for South Wales; the abolishment of the packet station would be productive of serious inconvenience as regards communication with Ireland; it is desirable that the English letters should pass through Bristol, *Barber* 1498–1502——If Milford is given up, the north as well as the south shore would be cut out, *Denham* 2218——The advantage to South Wales of keeping up the Milford station does not compensate the country for the great expense, *Maberly* 3104, 3105——Saving that would be effected by its abolition; its expense; value of the correspondence, *Ib.* 3133–3136——There would be no saving if another station at Brean Down supplied its place, *Ib.* 3137——The small number of letters sent by Milford shows that that line is not much appreciated, *Ib.* 3194, 3195——Course which the

South

MILFORD PACKET STATION—continued.

II.—*Opinions in favour of and against the Abolition of the Station*—continued.

South Wales letters would take in the event of the Milford establishment being abolished and a central line through North Wales adopted, *Maberly* 3197, 3198——Milford Haven answers well as a packet station, and Hobb's Point for a mail communication, *Hammond* 4081-4084——Every commercial man in South Wales would feel it to be a great injury if the Milford station were suppressed, *Allen* 4315-4320.

III. *Navigation of the Haven:*

Difficulties in touching at Milford Haven in bad weather, on the voyage from Brean Down to Cork or Waterford; a straight course could not be made if Milford was touched at, *White* 1247-1250——Milford Haven is a very good harbour of itself, but the approach is objectionable, particularly in thick weather; when in there is no better harbour; there is great depth of water at the mouth, *Edwards* 1892-1895——There is never any difficulty in getting in and out of Milford, *Rees* 3914-3920——When you make St. Ann's lights there is no difficulty in getting into Milford or up to Hobb's Point, *Hammond* 4011, 4012.

IV. *Present Establishment of Packets:*

1. Their Inefficiency:

Inefficiency of the Milford steamers; irregularity of their voyages, *Claxton* 194-197; *Price* 617-624. 755-757——Witness, who was appointed by Government in 1835 and 1836 to examine into the Post-office Packet Department, reported that the packets in this station were the worst of any between England and Ireland, although they had the most difficult passage to perform, *Evans* 232——Witness has frequently beaten the Milford packets by eight or 10 miles, with 700 head of pigs on board, *Burgess* 461-465——Inefficiency of the packets between Milford and Waterford in point of speed; improbability of an increase passenger traffic by that route, supposing a more efficient communication to be established; the land journey through South Wales is the principal objection, *Moriarty* 1863-1871——Last year the packets reached Hobb's Point 12 times too late for the mail coach; nine of these occasions would have been avoided with efficient packets, *Hammond* 3995-4005. 4056-4060——The steamers are repaired at the dock-yard with a few exceptions, *Ib.* 4020.

2. Passenger Traffic by them:

Small number of passengers by the packets and want of accommodation for them, *Evans* 279-281; *J. Williams* 3847-3849——If more passengers went by way of Milford there would be accommodation for them, *Hammond* 4033-4034——The steamers frequently cross without a passenger, and the quantity of letters is inconsiderable, *Ib.* 4119-4121.

3. Description of Coal used:

Description of coals consumed by the packets; relative strength of that coal and the Swansea coal; price paid for the Swansea coal delivered on board; price paid at Milford for the coal in use; contract price paid by Government, *Edwards* 2013-2019——The Milford packets use Scotch coal; saving that would arise from the use of Welsh coal, *J. Williams* 3842-3846——The Scotch coal is found to answer better than the Welsh with the present boilers, *Hommond* 4021-4023——If the boilers were so constructed as to allow the use of Welsh coal, a great saving would be effected, *Ib.* 4062-4069.

V. *Description and Number of Packets requisite for the Station:*

Vessels of 500 or 600 tons, and 250 or 300 horse-power, should run on this station; probable length of the voyage; exposed character of the station, *Evans* 276-278——Number and power of steamers required for the passage from Milford to Waterford, *Rennie* 3783-3785——Class of steamers recommended for the station, *Hommond* 4006-4010.——Four good steamers might do the duty, but it would be desirable to have a fifth, *Ib.* 4070-4077.

See also *Brean Down.* *Bristol Channel,* 2. *Bristol and Cordiff.* *Dale Bay,* 1, 2. *Hobb's Point.* *Hobson Pill.* *Mumbles,* The, 1. *Newport.* *Pembroke.* *Southern Line of Communication with Ireland.* *Swansea.*

Milford and Bristol. See *Bristol and Milford.*

Milford and Cork. See *Bristol and Cork.* *Cork and Milford.*

Milford and Portishead. See *Portishead and Milford.*

Milford and Waterford. Irregularity of the mails by Milford to Waterford; whenever steamers leave Bristol for Cork or Waterford about the same time as the mail, they send letters by them, which reach their destination sooner, *Cloxton* 31-38——The voyage from Milford to Waterford, with good steamers, would be 10 hours, *Price* 651——

Milford and Waterford—continued.

Average time occupied by the Milford packets both ways, *Parsons* 993–995——Hour at which the mail is dispatched from Milford to Waterford, *Ib.* 996——The worst of the passage for sea is between Milford and Waterford, *Edwards* 1954——Average length of the passage from Milford Haven to Waterford; it would be 11 hours under any circumstances in a steam-boat, *Denham* 2204, 2205.

Once last winter the mail could not be embarked, no steamer could have gone to sea on that day, *Hammond*, 3989–3994. 4015——Margin that should be allowed for irregularities between Milford and Waterford, *Ib.* 4078. 4092–4098.

See also *Brean Down*, III. 4. *Bristol Channel*, 2. *Hobb's Point and Waterford. London and Waterford. Waterford.*

Moriarty, Captain *Merion.* (Analysis of his Evidence.)—Commander of a steamer from Bristol to Cork, and a lieutenant in the navy, 1730–1734——In summer the favourite mode of communication between the West of England and London, and the South of Ireland is *viâ* Bristol, 1735——General average length of the passage to Cork in summer, 1736——Extent to which the communication would be accelerated by packets of a superior class starting from Brean Down in the Bristol Channel, 1737–1740——Witness has frequently entered Cork Harbour at night; nature of the soundings on entering the harbour; there are no difficulties whatever in the navigation, 1741–1746. 1763——Witness is acquainted with Waterford Harbour; there is a bar to be crossed on entering; least depth of water to be found on the bar; depth of water which a large vessel of 250 horse-power would draw; difficulty that would be experienced in getting over the bar with a southerly wind; difficulties in the navigation of the channel up to Waterford after passing the bar, 1747–1762——Traffic between Cork and Bristol; a great many passengers go between the two places in the summer; average number of cabin passengers in summer, 1764–1771.

Comparative merits of Bristol, Portishead, and Brean Down as starting places for steam communication with Ireland; difficulties in the navigation of the Bristol Channel, 1772–1780. 1786. 1806——Witness has delivered the mails in Cork in 27 hours from London; the people of Cork complain very much of the delay of their letters by the ordinary mode of communication, 1781–1785——Average speed of the vessel commanded by witness; average rate at which a Post-office packet ought to steam, 1807–1813——Rate at which the Bristol Channel may be navigated in a dark night at low water; the Channel is not very narrow, 1814–1817——Extent to which the passage of a vessel bound from Brean Down to Cork or Waterford would be retarded by calling at Dnle Bay or Milford Haven or the Mumbles; difference between each, 1818–1823. 1831–1841——Local situation and width of the bar in Waterford Harbour, 1824–1830——Average number of passengers carried between Cork and Waterford, 1842——The traffic with Cork and Waterford would not increase if there were a daily communication with larger packets, and more accommodation; few persons travel by the present communication in the winter; steamers could not be kept up for the conveyance of passengers alone; the returns are principally upon goods, 1843–1849.

If a proper line of packets were put on, the passage to Waterford could be made with greater certainty and regularity from Hobb's Point than from Brean Down, the passage being shorter; the danger of fogs would not be less at Milford than in the Bristol Channel, 1850–1853——Passengers alone would not defray the expenses of a line of steam-packets between Brean Down and Waterford merely to carry them and the mail; the expense of the voyage would be greater than from Milford to Waterford, inasmuch as a larger quantity of coal would be consumed, 1854–1857——A great many people from the South of England go round by Dnblin; a direct communication is very desirable; the objection to coming with pigs operates with very few, 1858–1862——Inefficiency of the packets between Milford and Wuterford in point of speed; improbability of an increased passenger traffic by that route supposing a more efficient communication to be established; packets running from Milford to Cork would not be preferred to those going from Bristol; the land journey through South Wales is the principal objection, 1863–1871.

MUMBLES, The:

1. *Its Capabilities as a Steam-packet Station.*
2. *Outlay necessary for rendering it fit for Post-office Purposes.*
3. *Papers laid before the Committee.*

1. *Its Capabilities as a Steam-packet Station:*

If there were accommodation for packets at the Mumbles it would be less out of the way than Milford, *Price* 768–771——There is an anchorage ground at the Mumbles, five miles beyond Swansea; it is a dead level from Swansea to the Mumbles; practicability of a pier being constructed at that point so as to make a harbour of refuge at all states of the tide, *Barber* 1534–1540——There is no better anchorage ground than that at the Mumbles, *Edwards* 1921——Quarters from which the roadstead itself is entirely protected, *Ib.* 1922——Points at which it is open, *Ib.* 1923–1925——Probable detention of a steamer starting from Portishead bound to Waterford, and calling at the Mumbles for bags, *Ib.* 2011, 2012——The Mumbles is the most eastern point from whence

MUMBLES, The—continued.

1. *Its Capabilities as a Steam-packet Station*—continued.

whence vessels could arrive and depart at post time, *Denham* 2093——Accommodation at present at the Mumbles for vessels; as a roadstead it is so open to the south-eastern and southerly gales as to render it a very trying anchorage; peculiar advantages presented for the formation of a breakwater, *Ib.* 2094, 2095.

The roadstead is at present protected from the south-west by the Mumbles Head; height of the Head above the water, *Denham* 2105, 2106——Prevailing wind to which the roadstead is exposed, *Ib.* 2107——There is no good anchorage ground in deep water outside the Head; it is as open and uneasy a roadstead as possible, *Ib.* 2111–2113——To the westward of the Mumbles Head it is open sea between that and Ireland; there are no difficulties of navigation between the Mumbles and Ireland, *Ib.* 2114, 2115——Distance from the Mumbles to the town of Swansea; there is a good turnpike-road and a tramway between the two places, *Ib.* 2117–2120——Packets starting from Brean Down and stopping at the Mumbles would be running some risk in thick weather of clearing the Scarweathers sands as well as the Nash, *Ib.* 2222.

Next to Dale Bay the Mumbles should be chosen for the departure of the mails, *Denham* 2251——The Mumbles affords very good anchorage; it is a large harbour, and the bay runs deep in, *Tayler* 2275, 2276——A harbour of refuge is wanted there, *Ib.* 2277——Average depth of water at the anchorage, *Ib.* 2284——The Mumbles is not more exposed than Brean Down, *Ib.* 2289——Relative merits of the Mumbles and Brean Down as Government packet stations to Ireland, *Ib.* 2291–2293.

2. *Outlay necessary for rendering it fit for Post-office Purposes:*

The Mumbles would not do in its present state as a station for Post-office packets; a floating breakwater would be most eligible for it; measures that have been taken with the view of placing such breakwater there, *Edwards* 1913–1920——Plan recommended by witness to render it eligible as a packet station, *Denham* 2096——Extent to which a pier or breakwater should be carried; probable expense of such pier; facilities for the formation of a breakwater, *Ib.* 2097–2102——Accommodation which would be afforded to vessels, supposing a pier to be erected upon the proposed scale, *Ib.* 2103, 2104——Whether under the circumstances of there being a chance of a pier being formed by private enterprise at Portishead, witness would recommend Government to incur the expense of a pier in the Mumbles, *Ib.* 2252–2256.

A good harbour of refuge might be made at the Mumbles; there ought to be a breakwater, *Tayler* 2277——Estimated cost of a mile of breakwater; three-quarters of a mile would be sufficient, *Ib.* 2278. 2282——Number of vessels to which protection would be afforded, *Ib.* 2283——Steamers starting from Brean Down and merely calling at the Mumbles to take in bags, would require the same protection; it would be necessary to make a landing place besides the breakwater at the same cost as at Brean Down, 2294-2296——At the Mumbles the anchorage is good, but a harbour could not be made there except at an enormous expense; Captain Tayler's floating breakwater would not do, *Rees* 3980. 3985——A floating breakwater would answer well as a protection of the anchorage ground at the Mumbles, *Tayler* 4156–4158——Reports of Lieutenants Claxton and Denham, R. N. to the trustees of Swansea Harbour in 1833, on the subject of a breakwater at the Mumbles, *App.* 281–285.

See also *Dale Bay*, 1. 2. *Green Grounds*, The. *White Oyster Ledge.*

N.

Napier, David. (Analysis of his Evidence.)—An engineer, and has been engaged in building steam-vessels from the very commencement of them, 2655–2659——Description of vessels built by witness, 2660——He has constructed several iron steam-vessels, and considers them superior to wood in every respect, 2661——The Eclipse, built by witness's two sons, is the fastest steamer in England; her greatest speed is 16 miles an hour, 2662——Iron vessels are suitable everywhere and for every purpose, 2664——The average speed of a vessel of 500 tons, and about 250 to 300 horse-power, would be about 14 or 15 miles an hour, 2665, 2666. 2675——A vessel of that description would draw not less than six feet of water; that would be quite sufficient to give her sufficient stability in a heavy sea, 2667, 2668——The lowest speed to which that vessel could be brought, in a heavy gale of wind, and with a heavy head sea, would be 10 miles an hour; there is no limit to the speed, 2669. 2682——She could make her passage with the same certainty as a mail-coach, 2670——A vessel could be made to go over a bar where the depth of water at the lowest spring-tides was only 12 feet, 2671——Iron vessels are divided into different compartments; they are not liable to burn or spring a leak, 2673——Improvements introduced by witness, for which he has taken out a patent, *Ib.*

The probable cost of an iron steam-boat of 500 tons and from 250 to 300 horse-power would be from 20,000 *l.* to 25,000 *l.*, 2674——Three packets would be required to keep up a daily communication efficiently at a distance of 176 miles, at a cost of 100,000 *l.* 2676, 2677——The cost of the engine is about 50 *l.* per horse power, and of the hull, *Napier, David.* (Analysis of his Evidence)—*continued.*

about 15*l.* per ton, 2679, 2680——Witness is doubtful whether the screw will attain the same speed as the paddle, 2683——Specification of a vessel lately constructed by witness with the wheels oblique at the stern of the ship, *Ib.*——The lines of such a vessel as described going 15 miles an hour would be very fine, they cannot be too fine, 2687——Effect of a heavy sea on such a vessel, 2688–2690——The Eclipse has never failed to make her passage, 2691–2694——Vessels might go from England to America in a week if they were made large enough, with power in proportion, 2696——A vessel of 500 tons and 300 horse-power will run the passage to Ireland at the rate of 14 miles an hour, 2699.

[Second Examination.]—Explains that the miles given in his previous evidence were statute miles, not nautical miles, 2700——The average rate of a steamer might be brought with certainty to 12 nautical miles an hour, 2701——Notwithstanding the heavy weather to be encountered in the Irish Channel, there would be no difficulty in making the passage as regularly as a mail-coach, 2702——Floating breakwaters would be perfectly efficient to enable vessels to lie in safety and to land passengers; witness has never seen one in operation, 2703, 2704——There would be no difficulty whatever in mooring them in safety, 2705, 2706——Opinion as to Captain Tayler's plan, 2709–2713——The greater power there is in proportion to the bulk, the greater will be the speed, 2717–2722——The finer you make the lines of a vessel the greater speed you get in all cases; there is a limit to the length, 2723–2725——You do not lose buoyancy in proportion as you obtain speed, 2726——You cannot give fineness to a vessel without length, 2727——The Eclipse was built of iron, 2731——The fineness of the lines makes very little difference in the buoyancy of a vessel, 2736, 2737——It would make a vessel pitch less, 2738——The sharper the floor is, the less she rolls and the more water she draws, 2739. 2746——Draught of water of the iron steamers between Liverpool and Glasgow; their rate per hour, 2742–2747——Draught of water of the Eclipse, 2751——Average rate of speed of the Unicorn, 2752–2754——It is possible to have too much power in a steamer, 2755.

The class of steamers described of 500 tons and 300 horse-power are very suitable for the purpose; a vessel of that tonnage could bear any quantity of power, 2756, 2757——Those vessels would average 12 knots an hour, 2759——The cost of vessels built of iron is rather more than that of wood; there is little difference, 2760, 2761.

Napier, Mr. Witness differs with Mr. Napier very much on some points, particularly with reference to the form of the bows and the buoyancy of a vessel, *T. A. Smith* 2766–2768.

New Passage Ferry. Cost of the establishment at the New Passage before the removal of the mails, *H. P. Williams* 1411——Difference of distance going by the New or the Old Passages from Bristol to Milford, *Ib.* 1444——The currents at the New Passage are very strong, *Denham* 2234–2239——The mails formerly crossed the New Passage, *Stow* 2355.——*See* also *Cardiff and Uphill. Old Passage Ferry.*

New York Packets. Inconvenience sustained by New York and other packets arriving off Liverpool in having to land their mails at their port of destination; they should be able to land them at the first port, and then beat up for Liverpool, *Denham* 3504, 3505.

See also *Ship Letters.*

Newport. The correspondence of the Newport and Cardiff districts with Ireland would be more certain by way of Portishead than by Milford Haven, *Claxton* 138–142——Expense of making a pier at Newport; public convenience of a pier at Newport or Cardiff; it would be easier to make a pier at Newport than at Cardiff, *Barber* 1503–1507——A communication from South Wales to Bristol at all times of the tide is easier made from Newport than from Cardiff, *Ib.* 1516——The Newport and Cardiff boats have never failed; the old boats failed twice in making their passage, *Burgess* 595–598.——*See* also *Bristol and Cardiff. London and Newport.*

North Wales. In the event of a railroad being made to any port in North Wales, it would be an advantage to the trade generally to be able to land their passengers and despatches at that port, *Denham* 3506——In that case a small steamer should go out and receive the mails, to avoid the risk of the packet standing in, *Ib.* 3506, 3507.

North of England Letters. Letters included in the term, "North of England letters," *Stow* 398——In the event of the packets being removed to Bristol, the North of England letters to Waterford would be sent by way of Liverpool and Dublin, *Ib.* 398–401. 424.——*See* also *Bristol. Bristol and Pembroke. Carmarthen and Pembroke.*

Northern Line of Communication with Ireland. See *Scotch and Irish Mails.*

O.

Old Passage Ferry:

I. *Generally:*

1. Present State of the Ferry, &c.
2. Impediments in Crossing the Passage.
3. Complaints made of the present Mode of carrying the Mails and Passengers across; Advantages that would arise from a regular Communication.
4. Post-office Contract for the Carriage of the Mails across.

II. *Improvements necessary for putting the Ferry into a proper Condition:*

1. Nature of the Improvements required, and estimated Expense of the same.
2. By whom the Improvements should be effected.

I. *Generally:*

1. Present State of the Ferry, &c.:

Rise and fall of the tide there; rate at which it runs, *H. P. Williams* 1300–1302. 1334——There is sufficient water for a steamer to cross at all states of the tide, *Ib.* 1303——Time occupied by the steamer in crossing; number of passages made in the day, *Ib.* 1304–1306. 1311. 1338——Size, tonnage, and power of the steamers employed, *Ib.* 1307–1310. 1314——There are states of the tide when the steamers cannot land, but no states of the tide when they cannot cross; reason of their being unable to land; manner in which the ferry is crossed when the steamers are unable to land, *Ib.* 1312–1318——Number of piers at the Passage; their length, width, and situation with respect to landing, *Ib.* 1344–1349——State of effectiveness of the steam-boats at present employed; description of boats best adapted for the ferry; improvements in their construction suggested; estimated cost, *Ib.* 1350–1359. 1365–1369——Average length of time during the 12 hours that the steamers cannot ply, owing to the defects in the present piers and approaches, *Ib.* 1374.

Circumstances under which the ferry is held by the present proprietors; amount laid out by them on the present piers; establishment maintained; annual average receipts and expenditure for the last five years, *H. P. Williams* 1390–1397——In consequence of the bad state of the piers and the insufficiency of the packets, people object to cross; number of mails and stage-coaches now crossing daily, *Ib.* 1398, 1399. 1425–1427——Table showing the particulars of the traffic at the ferry for the five years ending 24th June 1841, *Ev. p.* 69——Names of the present owner and lessees, *H. P. Williams* 1404–1407——There are no stated times for the crossing of the boats; arrangements made, *Ib.* 1451–1456——Breadth of the ferry; it is the lowest ferry in the channel, *Edwards* 2032–2039.

2. Impediments in Crossing the Passage:

Impediments in crossing the Aust Passage, *W. Smith* 917——The steam-boats between Cardiff and Bristol have been able to perform the voyage when there has been very great difficulty in crossing the Passage, *Ib.* 951——Delay occasioned to the mail in consequence of not being able to cross with the steamers at all times of the tide; inconvenience to and dissatisfaction of passengers travelling by it; this would be altogether obviated if the ferry could be crossed at all times and states if the tide, in a steam-boat, and with proper piers, *H. P. Williams* 1319–1326. 1341–1343. 1434–1438——The ferry is not dangerous in any way, *Ib.* 1419–1422——Merits of the Old Passage Ferry as compared with the New Passage, *Barber* 1462–1464——Danger of coming in contact with rocks in crossing the passage at low water, *Ib.* 1521——The Old Passage is to be effected with much greater regularity than the New Passage, or from Cardiff to Uphill, *Denham* 2228–2232——There is less danger of irregularity *Ib.* 2233——The Aust Passage is the best passage across the Severn, below Gloucester-bridge, *Stow* 2455.

3. Complaints made of the present Mode of carrying the Mails and Passengers across; Advantages that would arise from a regular Communication:

Complaints of the Old Passage have been made when the bags and passengers were conveyed in open boats, not when carried by steamers, *Stow* 439–442——The neighbourhood and counties adjoining would derive great convenience from a regular communication, *H. P. Williams* 1332, 1333——The improvement at the ferry would be a very great convenience to the inhabitants on the Welsh side of the Channel, there being a very great communication and correspondence between the mineral districts of South Wales and the South of Ireland, *Barber* 1495–1497——Complaints are made of sending letters by the Aust Passage, as creating delays and irregularities, *Stow* 2456——Complaints of the irregularities at the Old Passage; the letters could not be taken so regularly from Cardiff to Brean Down, *Maberly* 3063–3067.

OLD PASSAGE FERRY—continued.

I. *Generally*—continued.

4. Post-office Contract for the Carriage of the Mails across:

The mail-coach is carried across with its baggage unloaded, and is taken out on the opposite side; much time is saved by this plan, *H. P. Williams* 1360–1364——The Post-office contract for the conveyance of the mails across the ferry; sum allowed; number of mails conveyed daily, 1408–1410——It is provided in the contract with the Post-office, that the mail should be conveyed in a steamer at all times when practicable; number of times the down and up-mail crossed in the steamer and in an open boat, *Ib.* 1430–1436——The mail used formerly to be crossed at the New Passage, lower down the river; reason of its being removed to the Old Passage, *Ib.* 1442, 1443——The accommodation furnished to the Post-office is capable of improvement, if the allowance was increased; amount of the present allowance per day, *Ib.* 1445–1450——Inadequacy of the present Post-office allowance for the conveyance of the mails across the Passage, *Barber* 1491.

The mail-coach proprietors object to crossing the Old Passage at an early hour in the morning, *Stow* 2327——Reason for mail contractors objecting to convey the mail across at an earlier hour, *Ib.* 2330, 2331–2——Allowance paid at the Old Passage for the conveyance of four mails, *Ib.* 2357, 2358——A detour is made in crossing the Old Passage; the mail at present passes through Chepstow, *Ib.* 2359–2362——There has been an increase in the number of passengers since the mail was crossed at the Old Passage, and there has been less difficulty in obtaining contracts to horse the mail, *Ib.* 2363–2366——The principal reason for transferring the mail from the New Passage to the Old Passage was for the convenience of the steam-boat, and the passage is shorter, *Ib.* 2396, 2397——Number of passages made by the mail in an open boat in the six winter months of 1841, *Ib.* 2398——Time allowed for the passage of the ferry, *Ib.* 2400–2403.

II. *Improvements necessary for putting the Ferry into a proper Condition:*

1. Nature of the Improvements required, and estimated Expense of the same:

If the pier at the horse-ferry at the Old Passage were improved, time would be saved; occasional detention of the mail there, *Claxton* 206–212——More convenient landing-places are all that is necessary to enable the mail to be carried across the Old Passage at all hours of the night in a steam-boat, *Stow* 349–363——Number of trips per day that could be made with proper piers, *H. P. Williams* 1327——Mr. Rendel made a survey with a view to a steam bridge to cross with a chain, and he reported favourably of it, *Ib.* 1336–1340——Average length of time that would be occupied in crossing, supposing the passage to be rendered as perfect as suggested, *Ib.* 1371——The expenses would be considerably increased by having two steamers constantly at work; the economy of time and the saving of boats' crews' wages would not compensate for the increased expense, *Ib.* 1377–1382——Amount per cent. increase in the communication that would take place if the steamers plied regularly, and the accommodation were better, *Ib.* 1384——Effect of the improvements proposed with respect to night crossing, *Ib.* 1386–1389——If proper places of landing were made, it would repay the outlay, *Ib.* 1414——Amount for which the ferry could be put in a proper condition, *Ib.* 1417, 1418——If the improvements proposed were made, the ferry might be crossed at all times of the tide, and it would become the great line of communication to the Great Western Railway, *Ib.* 1437–1441.

Defects of the present establishment at the Old Passage; improvements and alterations proposed, *Barber* 1465–1474——Steam bridges or flying bridges would not be applicable to the Old Passage ferry; Mr. Rendel, who erected a chain-pier at Tor Point, reported favourably of it, *Ib.* 1475–1479——Fall of the tide at the Aust Passage; manner in which witness would propose to meet that fall, *Ib.* 1480–1484——Number of steamers required to make the Passage perfect, *Ib.* 1486——Estimate of the expense of effecting the necessary improvements, *Ev. p.* 72, 73——Improvements might be made at the landing-places by extending the present slips into five or six feet of water, *Edwards* 2040——Witness was employed by the Postmaster-general in 1836 to survey the Old and New Passages across the Severn; the object of that survey was to ascertain the practicability of establishing a floating bridge across, *Rendel* 2977–2980——Copy of the report and estimate made by witness of the result of the survey, *Ib.* 2986——Experience since the date of witness's report in 1838 has confirmed the efficiency and economy of steam floating bridges, *Ib.* 2987–2989——Opinion of Mr. Cubitt upon the subject of the improvement of the ferry; it does not differ materially from that which witness recommends in his report; respects in which it does differ, *Ib.* 2990–2992.

2. By whom the Improvements should be effected:

The increase of traffic would repay the outlay of effecting the improvements proposed; intentions of the proprietors of the ferry with respect to the same; amount of witness's estimate, *Barber* 1508–1515——Whether the Aust Passage should be improved or taken into the hands of Government, *Maberly* 3131.

See also *Barber*, Mr. *Brean Down*, III. 1. *Bristol and Carmarthen.* *Bristol and Waterford.* *Cardiff and Uphill.* *Floating Bridges.* *Glamorganshire.* *London and Waterford.* *New Passage Ferry.*

Packet Stations. See *Belfast.* *Bendrick Roads.* *Brean Down.* *Bristol.* *Bristol Channel.* *Cordiff.* *Cork.* *Dale Bay.* *Hobb's Point.* *Hobson Pill.* *Holyhead.* *Liverpool.* *Loch Larne.* *Loch Ryan.* *Milford.* *Mumbles,* The. *Portishead.* *Portpatrick and Donaghadee.* *Waterford.*

Parsons, Thomas. (Analysis of his Evidence.)—Postmaster of Waterford, 979——Hour at which the mail packet leaves Waterford for Hobb's Point; number of towns from which mails arrive; places for which mails are sent by the packets to Hobb's Point; mails received in return, 980–986. 1097, 1098. 1133–1136——Route by which letters from places west of London are dispatched, 987, 988——Number of mails dispatched to and received from London, 989, 990——Route by which letters to the south of England are sent from Waterford, 991, 992——Average time occupied by the Milford packets both ways, 993–995——Hour at which the mail is dispatched from Milford to Waterford, 996——Average time occupied from Bristol to Waterford, 997——Hour of arrival of the mail from Dublin in Waterford, 998—— Hour at which the packet arrives at Hobb's Point, 999——Inconvenience of the present arrangements, 1000, 1001——A considerable correspondence from the south of Ireland passes by Hobb's Point for South Wales, the south of England, the West Indies, and all parts of the world; the return correspondence comes round by Dublin, 1002, 1003. 1007. 1023——Inutility of the Milford packet station; advantages that would be gained by its removal to Bristol, 1004–1019. 1024–1042. 1113–1116. 1159–1163——Opinion as to respective merits of Cork and Waterford as Post-office packet stations, 1020–1022.

Hour at which the Hobb's Point mail is due; hour at which it starts; time occupied in the passage, 1043–1048——Hour at which the earliest mail starts from Waterford, carrying letters brought by Hobb's Point; its destination; towns for which letters would be conveyed by it, 1050–1052——Hour at which the Cork and Limerick mails are dispatched, 1053, 1054——Explanation of a statement in the Return of the Post-office to the Committee, that a letter posted at Bristol for Cork would take 30 hours to Waterford and 50 to Cork, making a difference of 20 hours between the two towns, 1055–1070——Margin that should be allowed for irregularities in the arrival of packets if the alteration in the packet station recommended by witness should be adopted, 1071–1074——It would be more desirable to have a communication direct from Portishead to the south of Ireland through the Bristol Channel, than by railway to Holyhead; the Holyhead line is the shorter voyage; delays in the arrival of the mails between Liverpool and Dublin, 1075–1077. 1151–1158——There is a morning mail from Dublin to Cork, and also to other towns in Ireland; whether any benefit would arise from the Post-office taking advantage of the conveyances which leave Dublin in the morning for different towns, 1078–1080——Advantages of the double mail to Cork; whether this advantage would be equally felt by other towns, 1081–1083——Number of miles between Dublin and Waterford; number of hours occupied by the mail in travelling the distance, 1084–1090——A great deal of the irregularity in the passage might be obviated if proper packets were established between Hobb's Point and Waterford, 1095, 1096——Considerable delay sustained at Hobb's Point; inefficiency of the present packets, 1097–1100——Arrangement proposed by which 12 hours might be gained, 1101–1109.

Distance between Cork and Waterford, and Waterford and Limerick; time occupied by the mail in performing the journey, 1118, 1119——Number of hours occupied by a letter in travelling from Waterford to London and from London to Waterford under the present Post-office arrangements, 1120–1125——Number of hours that would be occupied under the new arrangement proposed, 1126, 1127——There would be a great advantage in getting the mails for the north of England from Waterford round by Bristol, 1128. 1131, 1132——Average length of the passage set down by witness between Waterford and Portishead, 1130. 1146, 1147——Importance of a communication direct from London to Cork, 1138–1141——Time that would be occupied in going from Brean Down to Waterford, and from London to Brean Down, by railway, 1142–1144——Grounds on which witness forms his opinion that greater regularity is achieved by sea travelling than by land, 1145——Time that would be occupied in making the passage from Hobb's Point to Waterford, with a new establishment of good packets, 1148–1150——Decided advantage of the proposed line of steamers from Portishead or Brean Down to Waterford, calling off Milford for the mails, 1159, 1160. 1167–1171——Eligibility of Brean Down as a station, 1164–1166.

[Second Examination.]—Arrangement by which witness would propose to forward the correspondence from Waterford and the south of Ireland to South Wales; saving of time that would be effected to the south of England; difficulties with respect to the London mail; embarkation of passengers on board the steamers, 1545–1557——Time occupied in sending a letter from Swansea to Waterford by Hobb's Point and by Holyhead, 1558——Serious inconvenience would result to the trade between South Wales and Ireland if all the letters were sent round by Holyhead, 1559——The intercourse between South Wales and the south of Ireland is very great, 1560——Considerable outlay that would be required by the adoption of witness's plan, 1561, 1562——Inefficiency of the present establishment at Milford; merits of Hobb's Point as a

Parsons, Thomas. (Analysis of his Evidence)—*continued.*
packet station, 1563–1567——Rate at which the mail travels through South Wales, 1568, 1569——It would be more convenient to the south and west of England to have a direct Post-office communication than to go through South Wales, 1570–1573——Delay that takes place in the transmission of letters from Bristol to Waterford by Holyhead and Liverpool, 1574–1577——Detention of the mails through South Wales by the snow and frost, 1578–1582.

[Third Examination.]—Mode generally adopted by the Waterford merchants in sending their letters to London; the great majority of the letters go by Dublin; the merchants prefer sending and receiving their letters by Dublin rather than by Milford; this would not be the case if an alteration was made, 1876–1880.

Pembroke. It would be a disadvantage to Pembroke if the Milford line were done away with, *Claxton* 145.——See also *Bristol and Pembroke. Carmarthen and Pembroke.*

Peninsula and Oriental Steam Navigation Company. Description of lights used on board the vessels of this company; their advantages, *Willcox* 2792, 2793——Average speed of the company's vessels, *Ib.* 2808–2817.

Perry, James. See *London and Dublin.*

Petitions to The House. Observations on the subject of the petitions presented to The House, complaining of the defects and inconveniences in the present Post-office arrangements, *Maberly* 3131.

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PORTISHEAD:

1. *Generally.*
2. *Its Capabilities as a Packet Station.*
3. *Works necessary to be carried into execution to render it fit for Post-office Purposes.*

1. *Generally:*

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Portishead and Hobb's Point. Longest, shortest, and average voyage of a first-class steamer from Portishead to Hobb's Point, *Claxton* 734–737; *Evans* 805–818——A steam-packet of 500 tons, and 250 horse-power, with no cargo, would take about nine or nine hours and a half to run from Portishead to Hobb's Point; time that would be occupied in bad weather, *Edwards* 1949–1953.

Portishead and Milford Haven. Distance from Portishead to Milford Haven, *Evans* 826.

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PORTPATRICK AND DONAGHADEE:

1. *Their Advontages and Disadvantages as Packet Stations.*
2. *Improvements already Effected and Contemplated in the Harbours; Estimated Expense of completing the Works.*
3. *State of the present Packet Establishment.*
4. *Propriety of transferring the Station to Cairn Ryan and Loch Larne.*
5. *Papers laid before the Committee.*

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1. *Their Advantages and Disadvantages as Packet Stations*—continued.

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Smith, George. (Analysis of his Evidence.)—Engineer to the corporation for preserving and improving the port and harbour of Belfast, 3805——Depth of water from the first entrance of Belfast lock up to the quays of Belfast, 3806-3810——Improvements in progress to deepen the channel, 3811-3817.

Smith, Thomas Assheton. (Analysis of his Evidence.)—Has built 12 vessels, and some of them were steamers; has an iron vessel called the Glowworm, and the Fire King, a wooden vessel, 2762, 2763——Average speed of the Fire King, 2764, 2765. 2770——Witness differs with Mr. Napier very much on some points, particularly with reference to the form of the bows and the buoyancy of a vessel, 2766-2768——Agrees with him that there is no limit to speed, 2770——Ten miles an hour would not be an exaggerated estimate with vessels of the class described, across the Irish Channel, 2771——The average of steam-boats might be made above 12 miles an hour, 2772——Margin that would ensure regularity in a passage of 180 miles, 2773——Occasions of the Glowworm and Fire King being beaten by other vessels, 2774-2776——An iron vessel drawing nine or ten feet water, adapted to the purpose of carrying a mail across the Irish Channel, could cross a river bar with 12 feet water at the lowest spring tides, 2777————A vessel of 500 or 600 tons would be an appropriate vessel for the Irish Channel; fair cost of such a vessel built of iron; cost of the Fire King, 2780-2783——A vessel somewhat broader than the Fire King, which from her great length rolls too much, would be an applicable vessel, 2784, 2785——There is no state of weather in which such a vessel could not make head against the sea, 2786-2789——Iron vessels are one-third lighter than wooden vessels, 2790.

Smith, William. (Analysis of his Evidence.)—A merchant and general agent connected with the Irish trade, residing at Bristol, 853-856——Witness always sends his correspondence to the South of Ireland by the mail through Liverpool and Dublin, in preference to the Milford line; his reasons for so doing, 859-865. 901-905. 933. 961-970——Table of the imports to Bristol from Ireland from 5 April 1839 to 5 April 1840, *Ev.* p. 44——Average number of cabin and deck passengers between Cork and Bristol, and Waterford and Bristol, per voyage; amount of the cabin fare from each place, 870-875——Expense by mail from Bristol to Hobb's Point, and from thence to Waterford by the packet, 876-878——Saving of time that would be effected in transmitting the mail by a fast line of packets from Brean Down or Portishead to Waterford, as compared with the present arrangement of going by Milford, 880-889——Amount of the expense of going to Clonmel by way of Liverpool, 896——Number of hours required in going from

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from Bristol to Waterford by Milford, and also by Liverpool and Dublin; delays at the Aust Passage and Milford, 906–920——Comparison between the packets at Bristol and those at Milford, 921–923——Supposing the packets were to start from Kingroad, they would have to start immediately on the arrival of the mail from London, at all times of the tide; hours at which the day and night London mails arrive at and depart from Bristol, 924–932——There are no difficulties in the navigation of the Bristol Channel in the dead of the night and at low water, 934——Usual practice of the Bristol packets with respect to starting, 935.

Trade of Bristol with South Wales, 937——Probable effect of a Post-office communication direct from Bristol to the South of Ireland upon the trade of Bristol and South Wales; manner in which the correspondence between Bristol and South Wales would be arranged, 937–943——Uncertainty and delay under the present arrangements in crossing the Channel; to what to be attributed, 944–950. 956, 957. 968, 969——Regularity with which the steam-boats between Cardiff and Bristol perform the voyage when there has been very great difficulty in crossing the Old Passage, 951–955——With equally good packets there would be no greater difficulty in their crossing from Milford to Waterford than from Bristol to Waterford, 958——Regularity of Post-office communication to be preferred to great speed, attended with occasional delays, 959, 960——If a new line of packets were established from Bristol to Waterford, witness would consider it necessary to send a duplicate, until he got confidence in the line, 966——If there were a Post-office communication direct from Bristol to the South of Ireland, witness would not think it necessary to send a duplicate by Milford or Liverpool, or any other way, 971——Ship letters are always sent by the packets from Bristol to the South of Ireland; a letter sent by these packets is more certain to go than those sent by Milford, 972–977.

Smithett, Captain *Luke.* (Analysis of his Evidence.)—Commander of a packet on the Dover station, and formerly on the Portpatrick and Donaghadee stations, 3543–3545——Number and nature of interruptions to the packets between Portpatrick and Donaghadee, 3546–3552——Depth of water in Portpatrick Harbour, and quantity drawn by the packets, 3553, 3554——With vessels of 100 horse power, there would hardly be a day in the course of a year in which they could not make their voyage, 3555–3557——Possibility of increasing the accommodation of Portpatrick Harbour; it has no tendency to fill up, 3558–3568——Steamers of the present size, with more power, would make the passage in bad weather in half the time, 3569–3582——The harbours of Loch Larne and Loch Ryan would be as easily entered throughout the year as Portpatrick and Donaghadee, 3583–3593——Comparative length of the voyages, 3594——The harbours, winds, tides, &c. as applicable to each station compared, 3595–3613.

Effect of particular winds in crossing from Loch Ryan to Loch Larne, 3614–3617——Suggestion of an improvement of Portpatrick Harbour, 3618——Margin allowed for the arrival of the mails at Portpatrick and Donaghadee respectively, 3619–3621——Portpatrick Harbour could not be made to hold large steamers, 3622, 3623——The harbour of Donaghadee is always easy to enter; witness never missed it, 3624–3626. 3632——Places for which a vessel would run if she missed Portpatrick, 3627–3629——There would be no difficulty in navigating Belfast Loch; there would be smooth water, but a greater liability to fog, 3630, 3631——There would be smooth water for some miles both in Loch Ryan and Loch Larne, and there would be no difficulty in getting out, 3634–3640——The Maiden Rocks are now well lighted, and are less dangerous than they were, 3643, 3644.——Estimate of the expense of new works at Portpatrick Harbour, 3646.

South Wales Railway. Opinion upon the merits of the country selected for this line of railroad; practical difficulties to be overcome; line of country taken; length of the railway; chance of its being adopted; estimated cost per mile, *Barber* 1522–1532. 1542–1544.

See also *Bristol and Milford.* *London and South Wales.*

South Wales and London. See *London and South Wales.*

South Wales and the South of Ireland. Injury that would result to the mining and manufacturing districts of South Wales by having a direct communication from Bristol to the South of Ireland by steam-boats, *W. Smith* 938. 943.

See also *Brean Down,* III. 4. *Bristol.* *Holyhead.* *London and Dublin.* *Milford,* I. II. *Old Passage Ferry,* 3. *Southern Line of Communication with Ireland.* *Waterford.*

Southampton and Bristol. Evidence concerning Post-office communication between Southampton and Bristol; how it would suit the English route to the South of Ireland, *Stow* 427. 435——Distance in time between Southampton and Bristol, *Ib.* 2484.

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Southampton and Waterford. Time occupied by the present arrangement and the contemplated one with respect to letters from Southampton to Waterford and Cork, *Stow* 2465. 2470——Evidence respecting the present mode of sending letters from Southampton to Waterford, and improvements and saving of time that might be effected, *Ib.* 2477–2498.

Southern Line of Communication with Ireland. In the absence of a central line, the Committee are not prepared to recommend the discontinuance of a southern line, *Rep.* v.——Employment of the trading steamers from Bristol to Cork and Waterford by merchants for the conveyance of their letters; time occasionally saved, as compared with the Milford line, *Ib.* vii.——If a line of steam-packets were established between Bristol and the South of Ireland, the London newspapers might be received in 27 hours, *White* 1265——A great number of letters pass through Waterford from the South of Ireland for Devonshire, Somersetshire, and Cornwall; it would be more convenient to the South and West of England to have a direct Post-office communication than to go through South Wales, *Parsons* 1570–1573——Great benefit would result to the South of England and the South of Ireland by a communication from the Bristol Channel; it would be a national advantage, if put upon a proper footing, *Webb* 1694–1698——A direct communication between the South of England and the South of Ireland is very desirable; a great many people from the South of England go round by Dublin; the objection to coming with pigs operates with a very few, *Moriarty* 1858–1862.

The communication between the South of England and the South of Ireland is as good as it ought to be, looking at the amount and importance of the correspondence, *Maberly* 3034——The main circulation to the South of Ireland is by Liverpool and Dublin, *Ib.* 3035——Whether any and what southern communication should be maintained, 3108, 3109.

Great importance of a southern line of communication between England and Ireland, *J. Williams* 3819——Great inconvenience would be sustained if all the southern correspondence were sent by way of Dublin, *Ib.* 3820–3823——Extensive trade between the South of Ireland and the South and West of England and South Wales, *Ib.* 3824–3827——Many passengers now go by way of Dublin who would take the southern line if steamers ran every day, *Ib.* 3828–3832——Passengers would prefer the route by Brean Down to that by Milford; causes of this preference, *Ib.* 3833–3838——The acceleration of the northern mail six hours would not compensate for the surrender of the southern line of communication, *Ib.* 3854——As regards the South and West of England, the longer sea voyage by Brean Down would ensure a greater facility of communication than by Holyhead and Dublin, *Ib.* 3868——A southern line of communication with Ireland would be of importance to Bristol, and to the public generally, *Drew* 4222.

Statement showing the time occupied in the circulation of letters from a few selected towns in England to Waterford and Cork, by Hobb's Point, Holyhead, Birkenhead, and Liverpool, *App.* 277——Statement showing the time occupied in the circulation of letters from Waterford and Cork to a few selected towns in England, by Hobb's Point, Holyhead, Birkenhead, and Liverpool, *Ib.* 278——Statement showing the circulation of letters between certain towns in England and Waterford and Cork, assuming a packet station to be established at Brean Down, and the packets fitted to the night and day London mails; assuming also that packets are established between Cardiff and Brean Down, *Ib.* 279——Account of the number of letters posted at certain offices in the two weeks commencing respectively Monday May 2d and Monday May 9th, 1842, distinguishing the number of letters for Ireland from those for other places, *Ib.* 280.

See also *Brean Down. Bristol. Bristol Channel. Central Line of Communication with Ireland. Cork. Dale Bay. Holyhead. Milford. Old Passage Ferry. Portishead. Swansea. Waterford.*

Steam Navigation. Great improvements since 1827 in steam navigation; the speed of river-boats has been doubled, but not of sea-boats, *Evans* 295–303——Eight miles an hour is a fair average between the Bristol Channel, and ten between Liverpool and Dublin, *Ib.* 304–307——Rate of speed of a steamer down the Bristol Channel, and of a mail-coach along the road to Milford, compared, *Ib.* 800. 802——An iron steamer, drawing nine feet of water, would steam about eight miles an hour, taking all risks of weather, *Edwards* 1969–1977——Average rate of a powerful steamer down the Bristol Channel, and in crossing the Irish Channel, *Denham* 2257, 2258——The average speed of a vessel of 500 tons, and about 250 or 300 horse power, would be about fourteen or fifteen miles an hour, *Napier* 2665, 2666. 2675. 2699——A vessel of that description would draw not less than six feet of water; that would be quite sufficient to give stability in a heavy sea, *Ib.* 2667, 2668——The lowest speed to which that vessel could be brought in a heavy gale of wind, and with a heavy head-sea, would be ten miles an hour; there is no limit to the speed, *Ib.* 2669. 2682——The passage could be made with the same certainty as a mail-coach, *Ib.* 2670.

Witness is doubtful whether the screw will attain the same speed as the paddle, *Napier* 2683——The lines of such a vessel as described going fifteen miles an hour would be very fine; they cannot be too fine, *Ib.* 2687——Effect of a heavy sea on such a vessel, *Ib.* 2688–2690——The average rate of a steamer might be brought, with certainty, to twelve nautical miles an hour, *Ib.* 2701——The greater power there is in proportion to the bulk the greater will be the speed, *Ib.* 2717–2722——The finer you make the lines of a vessel the greater speed you get in all cases; there is a limit to the length, *Ib.* 2723–2725——You do not lose buoyancy in proportion as you obtain speed, *Ib.* 2726——You cannot give fineness to a vessel without length; the fineness of the lines makes

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makes very little difference in the buoyancy of a vessel; it would make her pitch less, *Napier* 2736–2741.

The average speed of steam-boats might be made to exceed twelve miles an hour across the Irish Channel, *T. A. Smith* 2770–2772——A vessel of 500 tons, and from 250 to 300 horse-power, would in an open sea average eleven nautical miles an hour, *Willcox* 2798–2801——From seven to eight feet depth of water would be sufficient for a mail-packet of that description, *Ib.* 2802——The average speed of a vessel of 500 or 600 tons, and from 250 to 300 horse-power, would be twelve nautical miles in ordinary weather; rate of speed of the iron steamers running from the Clyde, *Russell* 2901–2903——Lowest speed to which a vessel of that description could be brought in a gale, and a heavy head-sea, *Ib.* 2904, 2905——Average rate of sailing calculated upon with good steamers, *Hammond* 4100–4103——Relative speed of large and small steamers, *Ib.* 4104–4110.

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Stephenson, George. (Analysis of his Evidence.)—Civil engineer, 3704——Has surveyed a line of railway from Chester to Holyhead, 3705——Menai Bridge might be crossed either by means of an endless rope, or by detaching the carriages and drawing them over singly by horses; a delay of 10 minutes only would be caused, 3706–3712——A higher rate of speed might be maintained than that mentioned in witness's Report, but he objects to a very high speed, 3712——No other line could be made for anything like so small a sum, 3714——Both the proposed lines of railway to Port Dynllaen are full of engineering difficulties; it is out of the question to attempt them, 3715–3718——Holyhead Harbour is capable of improvement at no great expense; the late Mr. Rennie's Report referred to, 3719–3723.

Stow, George. (Analysis of his Evidence.)—The London mail arrives at Bristol at five minutes past one a.m., and the Pembroke mail is dispatched thence at six in the morning; causes of this detention; meeting with the Northern mail at Chepstow, 315–318——Time would be saved by taking the Pembroke mail through Gloucester; no tender could be obtained for it, 319–335——The London letters would reach Chepstow an hour earlier by way of Gloucester than by the Old Passage across the Severn, 336, 337——If the passage were improved, the mail might leave Bristol within an hour after the arrival of the London train, but then it would reach Chepstow before the return letters, 338, 339——A mail-coach between Gloucester and Chepstow would be a convenience to passengers, and for the London letters, but would sacrifice the Northern, 340, 341——The London and the Northern letters arrive at Gloucester at the same moment, and go together thence to Chepstow, 342–344——The letters are detained at Carmarthen, waiting the arrival of the Bristol mail, 345–348.

More convenient landing-places are all that is necessary to enable the mail to be carried across the Old Passage at all hours of the night in a steam-boat; three hours might then be saved in dispatching the Pembroke mail from Carmarthen, 349–363——If the Northern letters were combined with the others, more time would be lost by way of Bristol direct to Ireland than by the present route through South Wales, 364–370——No time would be gained if the Northern correspondence were brought into Bristol, 371–377——Time that would be lost in the correspondence of Swansea with the South of Ireland if it went through Bristol, 378–385——This applies still more strongly to Llanelly, and all places to the westward of Swansea, 386, 387——Nothing is wanting at Hobb's Point to render it a fit station for packets, 389–392——In the event of the packets being removed to Bristol, the quickest route from Swansea might be through Liverpool and Dublin, 394——That route described, 395–397——The North of England letters for Waterford would be sent by way of Liverpool and Dublin, 398–401——From South Wales, and all places to the west of Gloucester, letters would go through Milford to the South of Ireland, 402–405.

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been made when the bags and passengers were conveyed in open boats, not when carried by steamers, 439–442.

[Second Examination.]—Examined with reference to a statement in a return put in by the Post-office relative to the time occupied in the circulation of letters from a few selected towns in England to Waterford and Cork, and is ordered to prepare further returns, 1872–1874.

[Third Examination.]—Cause of the delay of five hours in the dispatch of the London mail from Bristol to Pembroke, 2324–2326——The mail-coach proprietors object to crossing the Old Passage at an early hour in the morning, 2327——The Post-office arrangements would be greatly facilitated if the improvements at the Old Passage proposed by Mr. Barber in his evidence were effected, 2329——Reason for mail contractors objecting to start at an earlier hour, 2330, 2331–2——Hour at which the Irish mail could leave Bristol, supposing it to be conveyed across the Passage in a steam-boat, 2333–2335——Hour at which it would arrive in Swansea; time that would be gained, 2336–2340——Time at which it would arrive at Hobb's Point and at Waterford, supposing a better description of steam-boats, 2341, 2342——Rate at which the mail travels from Bristol to Hobb's Point, 2343–2346——The most direct and advantageous line from London to Swansea is through Gloucester and Chepstow; reason for its not having been adopted, 2347–2354——The mail formerly crossed the New Passage, 2355——Allowance paid at the Old Passage for the conveyance of four mails, 2357, 2358——A detour is made in crossing the Old Passage instead of the New Passage; the mail at present passes through Chepstow, 2359–2362——There has been an increase in the number of passengers since the mail was crossed at the Old Passage, and there has been less difficulty in obtaining contracts to horse the mail, 2363–2366——If the letters from London are transmitted through Gloucester and Chepstow there must still be a mail communication across the Old Passage to Chepstow and Newport, 2367–2373——The Bristol letters would be delayed a day unless a second mail was put on to Gloucester, 2374–2380——The transmission of the London mails through Gloucester would not affect the letters from the southern or western parts of England, 2381–2383.

Whether it could be arranged that the letters from Liverpool to South Wales could be dispatched from Liverpool at three in the afternoon, 2384–2390——Cause of the irregularity in the departure of the packet from Hobb's Point to Waterford; acceleration that might be made in the arrival of the mail at Waterford, 2391–2395——The principal reason for transferring the mail from the New Passage to the Old Passage was for the convenience of the steam-boat, the passage being shorter, 2396, 2397——Number of passages made in an open boat in the six winter months of 1841, 2398——Time allowed for the passage of the ferry, 2400–2403——Gloucester and Chepstow is the best line to Swansea and Milford; advantages to be gained in accelerating the mails by that line, 2404–2411——Time that would be gained by sending the London mails to Chepstow through Gloucester, 2412–2419——Time in which a letter is sent from Swansea to Waterford by Hobb's Point under the present arrangement; time that would be occupied supposing the transfer of the packet station to Brean Down, 2420–2427——Length of time that would be taken in conveying a letter by Holyhead and Dublin, 2428, 2429——Acceleration that might be made in the mails from Swansea to London, 2430–2443——This arrangement would be a great benefit to Newport, 2444, 2445——Alterations in the system of Post-office communication with South Wales that the proposed arrangement would involve, 2446, 2447.

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Evidence respecting the present mode of sending letters from Southampton to Waterford, and improvements and saving of time that might be effected, 2477–2498. 2517–2519——It would require 30 minutes at Waterford to sort the interior letters before they could be dispatched, 2499——Hour at which the Liverpool mail is due in Dublin; time at which the mails are dispatched from Dublin to the interior, 2500, 2501. 2509——Average length of the voyage between Liverpool and Kingstown, 2502——Hour at which the mail ought to leave the Mersey and arrive at Dublin, 2503–2508——Margin that should be allowed for irregularities upon a voyage from Brean Down to Waterford; margin

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[Fourth Examination.]—Number of times, specifying the dates, from the 15th June 1841 to the 25th February 1842, that the mail has been put on board the packet at Birkenhead more than 10 minutes later than the appointed time, stating the causes of such delay, 2527——Number of times that the coaches have been dispatched from Dublin without the mails from England owing to the foregoing irregularities, 2528——Every effort has been made by the Post-office to obtain greater regularity of arrival by the railways, 2529——The distance between Crewe and Chester, 21 miles, is run in an hour, but the Grand Junction Company have agreed to do it in 48 minutes, 2530, 2531——Delays that take place on the line from London to Liverpool; acceleration of speed that might be gained, 2532–2537. 2541——Average rate of travelling per hour between London and Birkenhead by the railway, 2538——Time allowed for the embarkation of the mails and passengers, 2539——Rate at which the mail travels on the Great Western Railway, 2542——The distance to Bristol is 118 miles, 2543——Time taken by the mail train, 2544——Table of the rates of travelling upon different railways, 2545.

[Fifth Examination.]—Time occupied by a letter in going from Glasgow to Belfast by the present arrangement, 3023——Time that would be taken in the event of a mail establishment being formed at Loch Ryan, 3024——The mail from Donaghadee to Portpatrick has frequently arrived late, 3026——There is a mail from Belfast to Larne, 3029——Complaints have been made to the Post-office of the inconvenience of the present arrangements between Portpatrick and Donaghadee, 3031, 3032——Time-bills of the mail from London to Hobb's Point *viâ* Bristol, and from Hobb's Point *viâ* Bristol to London, *Ev. p.* 177, 178——Time-bills of the mail from London to Hobb's Point *viâ* Gloucester, and from Hobb's Point to London by the same route, *Ev. p.* 178, 179.

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Sully Island. The best line of communication from South Wales to the railroad, if there was a station at Brean Down, would be at Sully Island, *Claxton* 174.
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Swansea. Swansea and all places to the west would be worse off, as regards their Irish correspondence, if Milford were done away with, *Claxton* 145–150——Time that would be lost in the correspondence of Swansea with the South of Ireland if it went through Bristol, *Stow* 378–385——This applies still more strongly to Llanelly and all places to the westward of Swansea, *Ib.* 386, 387——In the event of the packets being removed to Bristol, the quickest route from Swansea might be through Liverpool and Dublin, *Ib.* 394——That route described, *Ib.* 395–397——Distance from Swansea to Cardiff by land; delay that would occur by the letters from Swansea to the South of Ireland being sent round by Cardiff to Brean Down, *Denham* 2244——Trade of Swansea, Cardiff, and places to the westward of Newport with Ireland; effect of discontinuing the Milford mail upon the interests of those districts, *J. Williams* 3864–3867.

Swansea is a dry harbour at low water, *Barber* 1541——Table showing the estimated value of flour entered at the port of Swansea and at Neath, from Ireland, in the year 1841; of wheat and other grain, and copper ore; also the exports of coal and culm in the same year; number of vessels entered inwards and outwards from Ireland and from Llanelly, and the number of letters daily to Ireland, *Ev. p.* 102——There are large collieries in the neighbourhood of Swansea; the coal is peculiarly adapted to steam-packet purposes, *Denham* 2121, 2122——Swansea is a place of that commercial importance, that it would be a very good centre to take the letters to; and it is a point of such importance as a Post-office station, that if combined with a refuge, it would be doubly satisfactory, *Ib.* 2224.——*See* also *Mumbles,* The.

Swansea and London. Course of Letters from Swansea to London by way of Cardiff and Brean Down, *Maberly* 3051–3054.——*See* also *London and Swansea.*

Swansea and Waterford. Time occupied in sending a letter from Swansea to Waterford by Hobb's Point, and by Holyhead, *Parsons* 1558——Time in which a letter is sent from Swansea to Waterford by Hobb's Point under the present arrangement; time that would be occupied, supposing the transfer of the packet station to Brean Down, *Stow* 2420–2427——Length of time that would be taken in conveying a letter by way of Holyhead and Dublin, *Ib.* 2428, 2429——Letter from Swansea to Waterford by way of Brean Down traced, *Maberly* 3068, 3069—And by Hobb's Point, as at present, to Waterford and Cork, *Ib.* 3070. 3077.

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Tayler, Captain *Joseph Needham,* R. N., C. B. (Analysis of his Evidence.)—Has directed his attention to the forming of harbours, 2261, 2262——Description of Brean Down, 2264——There is a great tendency to the accumulation of mud in Uphill Bay; a stone breakwater would create an accumulation of mud, and might endanger the anchorage,

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2264——A floating breakwater would be the best mode of protecting ships, 2265——Direction in which the breakwater should be moored, 2266–2268——Estimated cost of a breakwater of a quarter of a mile in length upon floating principles, 2269——There is nothing in the rise and fall of the tide to prevent a landing-place being made upon the rocks, 2270——Total estimated cost of a protection for the harbour and an efficient landing place, 2271–2274——The Mumbles affords very good anchorage; it is a large harbour, and the bay runs deep in, 2275, 2276——A harbour of refuge is wanted there; the Bristol Channel is a most dangerous place, in consequence of the great fall of the tides and the chance of the sands; it requires protection, 2277——A good harbour of refuge might be made at the Mumbles; there ought to be a breakwater, *Ib.*——Estimated cost of a mile of breakwater; three-quarters of a mile would be sufficient, 2278. 2282——Number of vessels to which protection would be afforded, 2283——Average depth of water at the anchorage, 2284.

The Mumbles is not more exposed than Brean Down, 2289——Relative merits of the Mumbles and Brean Down as Government packet stations to Ireland, 2291–2293——Steamers starting from Brean Down and merely calling at the Mumbles to take in bags, would require the same protection; it would be necessary to make a landing-place, besides the breakwater, at the same cost as at Brean Down, 2294–2296——Proposed depth for a breakwater; it depends upon the anchors and cables for holding, 2297–2301——Depth of the agitation of the sea; average inclination or elevation of a beach, 2302–2309, 2310——Principle on which witness forms his breakwater; general principles on which floating breakwaters are formed, 2302——Such a breakwater is adapted to still the water in the roadstead of the Mumbles, 2303——Useful properties of a new glue tried by the Admiralty at Woolwich, *Ib.*——Scale of an experiment conducted by witness at Plymouth; its success, 2304–2307——In shallow water there is less resistance than in deep water; there is not a greater ground-swell in shallow water than in deep; depth of wave, 2307, 2308——Witness has not made a survey of Brean Down with reference to the formation of a breakwater there, but considers himself justified in giving an opinion as to its cost, its length, and the mode in which it should be constructed, from the position in which he would venture to place it on the Government chart, 2311–2323.

[Second Examination.]—Lately visited Brean Down; puts in a chart of the anchorage, 4125–4127——Winds to which it is chiefly exposed, 4128–4131——Best position for a floating breakwater, and estimated cost if the anchors and moorings were laid down by Government, 4132–4136——The anchorage is excellent for the purpose, 4137——There might be a permanent landing-place sufficient for carriages and horses, 4138, 4139——Vessels would resort there for water, and a harbour of refuge might be made, 4139, 4140——Materials of which the sections of a floating breakwater may best be made; peculiarities of witness's invention; duration of moorings, &c. 4141, 4142——A floating breakwater at Brean Down would be a lucrative concern, and would be willingly undertaken by private persons if selected as a packet station, 4143, 4144.

Experiments tried with models of the floating breakwater, 4145–4149——Opinions of members of the Admiralty Board and of the Trinity Board concerning the invention, 4150–4153——The French are likely to be the first to try the plan for the formation of harbours of refuge, 4154——No work is yet in progress; they are waiting for the third reading of the Bill before Parliament, 4155——A floating breakwater would answer well as a protection of the anchorage ground at the Mumbles, 4156–4158——The superiority of the floating breakwater to stone piers is particularly shown where there is a great rise and fall of the tide, 4159——Brean Down would be a fair place for trying it, 4160——The late Government offered anchors and moorings to try it at Brighton, 4161——Government has stores applicable to the purpose, 4162——Expense of each section; length thereof, 4163–4165——Reasons for not proceeding with the experiment at Brighton, 4166——The old anchors lying idle in the dockyards might be used, 4167——Railway communication between London and Brean Down; length of journey, 4168–4170.

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Tralee. Tralee is a town of a good deal of importance, *Webb* 1627.
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Trinity Board. The surveys of the late Mr. Rennie of the coasts on each side of the Channel, which were completed in 1815, were referred to the Trinity Board for their examination, and they recommended Portpatrick and Donaghadee, *Hull* 3743.
See also *Lighthouses.*

U.

Uphill and Cardiff. See *Cardiff and Uphill.*

V.

Vivian, J. H. See *London and South Wales.*

W.

WATERFORD:

1. *Generally.*
2. *Its Advantages and Disadvantages as a Post-office Packet Station, and as compared with Cork and Dunmore.*
3. *Present State of the Navigation in the Harbour; Improvements recommended.*

1. *Generally:*

Traffic in connexion with Waterford and the towns in the interior, *Price* 652–658——Trade between South Wales and Waterford, *Ib.* 666–668——Route by which letters from places west of London are received, *Parsons* 987, 988——Route by which letters to the South of England are dispatched from Waterford, *Ib.* 991, 992——Hour at which the earliest mail starts from Waterford carrying letters brought by Hobb's Point; its destination; towns for which letters would be conveyed by it, *Ib.* 1050–1052——Hour at which the Cork and Limerick mails are dispatched, *Ib.* 1053, 1054——Arrangement by which witness would propose to forward the correspondence from Waterford and the South of Ireland to South Wales; saving of time that would be effected to the South of England; difficulties with respect to the London mail; embarkation of passengers on board the steamers, *Ib.* 1545–1557——Considerable outlay that would be required by the adoption of this plan, *Ib.* 1561, 1562——Mode generally adopted by the Waterford merchants in sending their letters to London; the great majority of the letters go by Dublin; the merchants prefer sending and receiving their letters by Dublin rather than by Milford; this would not be the case if an alteration were made, *Ib.* 1876–1880——The arrival of the Milford mail at Waterford at nine in the morning, instead of 12 at noon, would be an advantage to the towns on the line between Waterford and Cork, and to Cork itself, *Kendrick*, 2621–2623——Relative importance of the trade of Waterford with different parts of England, especially the North and the South and the South-west, *J. Williams*, 3850–3853——It would be convenient to Cork, Limerick, and the inland towns if the mail reached Waterford at night, but six in the morning is early enough for Waterford and its vicinity, *Ib.* 3887——Time in the morning most convenient for reaching Waterford, *Hammond*, 4111–4118. 4122–4124.

2. *Its Advantages and Disadvantages as a Post-office Packet Station, and as compared with Cork and Dunmore:*

Its advantages and disadvantages as a packet station enumerated; its position compared with that of Cork, *Rep.* vi.——A vessel would often make Waterford when it would be difficult to make Cork; prevailing winds, *Burgess* 466–473——The town of Waterford is a better station than the harbour of Dunmore, *Price* 636, 637——Respective merits of Cork and Waterford as Post-office packet stations for the South of Ireland, *Parsons* 1020–1022——Waterford is best adapted to Post-office purposes, considered geographically; it would be more central than any other port, with reference to the circulation of the mails, *Kendrick* 2609–2617.

3. *Present State of the Navigation in the Harbour; Improvements recommended:*

Effect of Waterford bar in a fog upon the navigation to that port; there are good lighthouses before you come to the bar, *Evans* 310–314——The River Suir may be taken day and night, especially by mail-steamers without cargo; Hook and Dunmore lighthouses, *Burgess* 454–457——Witness has never been prevented going into the Suir at any time, either by wind or tide, *Ib.* 458–460——The facilities for landing at Waterford could not be improved, *Ib.* 547–549——At Waterford you can get up at all times of the tide, *Ib.* 553, 554——There is a bar on entering Waterford Harbour, but steamers can pass over it at all times; in foggy weather it could not be done, *Ib.* 557–566——Depth of water in the harbour, *Ib.* 582–587.

The River Suir is navigable for all ships, except perhaps heavy men-of-war, *Price* 604——A steamer drawing 12 feet of water could always get over the bar and right up to the quay, *Ib.* 605–609——The harbour is well lighted and buoyed, *Ib.* 610–612——Shallowest water over the bar; smoothness of the water, *Ib.* 613–616——Witness once took a steamer back to Waterford after having lost her rudder; a ship is now lying there that came in without a rudder, *Ib.* 625, 626——The bar presents no practical difficulty to a vessel drawing 11 or 12 feet; width of the channel; lights, &c. *Ib.* 631–635——A ship of 941 tons recently embarked her passengers at Waterford Quay without a boat, *Ib.* 664, 665——There is no uncertainty in the soundings in entering Waterford Harbour, *Ib.* 772–778.

Difficulties in the navigation of Waterford Harbour; nature of the soundings; danger of crossing the bar at low water, *White* 1203–1210. 1213, 1214——Depth of water over the bar;

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3. *Present State of Navigation in the Harbour; Improvements recommended*—contd. bar; its situation within the harbour, *White* 1251–1256; *Moriarty* 1824–1830——Least depth of water to be found on the bar; depth of water which a large vessel of 250 horse power would draw; difficulty that would be experienced in getting over the bar with a southerly wind, *Moriarty* 1747–1757——Difficulties in the navigation of the Channel up to Waterford after passing the bar, *Ib.* 1758–1762——There would be no difficulty in navigating the Waterford River, in any state of the tide, with an iron steamer drawing nine feet of water, *Edwards* 1964.

The leading depth of water on the bar is twelve feet, but it is subject to nine feet upon the slightest yaw, *Denham* 2156——Waterford Harbour is a most difficult navigation by night; nature of those difficulties; they might be easily obviated by the erection of small lights, *Ib.* 2152–2154. 2160——An iron vessel drawing ten and a half feet of water could not go over the bar in Waterford Harbour at dead low water, and in a gale of wind, *Ib.* 2167–2170——Distance from where the difficulties in the navigation begin, to the town, *Ib.* 2177——Length of time a steam-packet would require to make the distance, *Ib.* 2178——It would be dangerous to navigate the Waterford River in the dark; hour at which a Post-office packet should calculate upon getting in, and navigating the river in safety, *Ib.* 2179–2183. 2206–2208——Witness would prefer stopping at Creden Head, assuming a harbour to be constructed there, *Ib.* 2209–2212——Cost at which it could be done, *Ib.* 2213.

An iron steam-boat of 300 horse power could cross the bar at Waterford in safety at the lowest spring tides, when the depth of water is 12 or 13 feet, *Willcox* 2804, 2805——The bar might be easily removed; a vessel of 250 horse power and 300 tons register could not cross the bar when the lowest water was 12 feet, with a heavy sea, *Russell* 2921——Extracts from witness's report in 1838 on Waterford Harbour, *Cubitt* 3376, 3377——Evidence as to the navigation into Waterford Harbour in particular winds, *Denham* 3517–3530——In clear weather you can go right up to Waterford in the night, and at low water, *Hammond* 4013, 4014——The packets should not draw more than nine feet water; there is sometimes as little as nine feet in Waterford River, *Ib.* 4015–4019——Waterford Harbour would not admit very large steamers at low water spring tides, and such vessels therefore would not be more fit for Brean Down than for Milford, *Ib.* 4040–4046——A vessel drawing nine feet would never be stopped at Waterford, and larger vessels could always get in if they arrived at five or six in the morning, *Ib.* 4085–4091.

See also *Brean Down*, III. 4. *Cork.* *Dale Bay.*

Waterford and Bath. See *Bath and Waterford.*

Waterford and Bristol. Course usually steered from Waterford to Bristol, *Claxton* 15–17——*Burgess* 474–476——There would be a great advantage in sending the mails for the North of England from Waterford round by Bristol, *Parsons* 1128. 1131, 1132.

See also *Bristol and Cork.* *Bristol and Waterford.*

Waterford and Cork. Present arrangement for the transmission of the Milford mails from Waterford to Cork; alterations and improvements that might be made; distance from Cork to Waterford; rate at which the mail travels in Ireland; advantage of a direct communication through South Wales to the South of Ireland, *Webb* 1610–1625——There is a very small Post-office communication between Waterford and Cork, *Kendrick* 2576–2578——Time consumed in the Post-office communication by the night mail from Waterford to Cork, *Ib.* 2580, 2581——Route by which letters go from Waterford to Cork, *Ib.* 2582.——*See* also *Cork and Waterford.*

Waterford and Dublin. Hour of arrival of the Dublin mail in Waterford, *Parsons* 998——Distance between Dublin and Waterford; number of hours occupied by the mail in travelling the distance, *Ib.* 1084–1090.

Waterford and Falmouth. See *Falmouth and Waterford.*

Waterford and Hobb's Point. Hour at which the mail packet leaves Waterford for, and arrives at, Hobb's Point; number of towns from which the mails arrive; places for which mails are sent by the packets to Hobb's Point; mails received in return, *Parsons* 980–986. 999. 1097, 1098. 1133–1136——Inconvenience of the present arrangements, *Ib.* 1000, 1001——Hour at which the Hobb's Point mail is due in Waterford; hour at which it starts; time occupied in the passage, *Ib.* 1043–1048.

See also *Hobb's Point and Waterford.*

Waterford and London. Time occupied by a letter in travelling from Waterford to London, and in returning, under the present Post-office arrangements; saving of time that would be effected if the stations were in the Bristol Channel, with improved boats, *Parsons* 1120–1127——Quickest time in which a letter can be delivered from Waterford to London by Birkenhead, *Stow* 2479. 2485.

See also *London and Waterford.*

Waterford and Milford. Nature of the mercantile traffic between Waterford and Milford, *J. Williams* 3839–3841.——*See* also *Milford and Waterford.*

Waterford and Portishead. See *Portishead and Waterford.*

Waterford and Southampton. See *Southampton and Waterford.*

Waterford and Swansea. See *Swansea and Waterford.*

Webb, Arthur. (Analysis of his Evidence.)—Postmaster of Cork, and has held other situations in the Post-office, 1583–1585——There are always great changes taking place in the transmission of letters, 1586——Milford is the only direct station from that part of England to the South of Ireland; it is very little made use of; average number of letters received per day in Cork by way of Milford, 1587, 1588. 1601. 1603——Dublin is the great channel of communication with Cork; hours of arrival and departure of the Dublin mail at Cork; delays in the communication; it might be much accelerated, 1589–1598. 1609——Mails dispatched into the interior from Cork in the evening; hours at which dispatched, 1599, 1600——Average general communication of Cork with Dublin daily, 1602, 1603——Mails dispatched from Cork in the morning; hours of departure, 1604–1608——Transmission of the Milford mails from Waterford to Cork; present arrangement; alterations and improvements that might be made; distance from Cork to Waterford; rate at which the mails travel in Ireland; advantages of a direct communication through South Wales to the South of Ireland, 1610–1625.

There is a considerable and increasing trade between Cork and the western districts of the county, 1626, 1627——Advantage that would result to the districts about Cork supposing letters to arrive in 30 hours from London and the West of England; time at present taken between London and Cork by way of Dublin; places from which letters are received by way of Milford, 1628–1639——A considerable number of ship-letters are received at Cork; they are casualties which are not to be looked for regularly; ship-letters are seldom received by the steam-packets from Bristol; the packets are not used as a communication by post, 1640–1646——Cork is a very extensive rendezvous for vessels sailing to different parts of the world, calling for orders and provisions; it is the only port in Ireland for the embarkation of troops; that circumstance would not increase the Post-office communication there in a great degree, 1647–1649——The arrangement proposed with respect to Cork would not apply to Waterford, because under existing circumstances they would get their letters for commercial purposes as soon by Dublin, 1650–1660.

Preference should be given to Cork as a station for the packets to run to, so far as Post-office communication for the South of Ireland is concerned, 1662, 1663——Supposing a line of packets to be established, and the average passage such as to make the mail due at three o'clock in Cork, hour at which the mail should be dispatched for the interior; number of hours that should be allowed for irregularities in the arrival of the packets, 1664–1675. 1687, 1688——Proportion of the English letters brought by the morning and evening mails from Dublin; the regular line from London is by the Clonmel mail; delays that take place in the transmission of letters, 1676–1679. 1718——Acceleration of speed that might be effected in the travelling of the mails between Dublin and Cork, 1680–1682——A line of railway to Holyhead and packets thence to Dublin, and a line of railway from Dublin to Kilkenny, for which a Bill has been obtained, would be a preferable line of Post-office communication with the South of Ireland to the line to Cork or Waterford by packets from some point in the Bristol Channel; grounds on which that opinion is formed, 1683, 1684.

Ship-letters are occasionally received by the steam-boats from Bristol, 1685, 1686——A line of railway from Bristol to Milford, through South Wales, would expedite the letters from the South and West of England more than the line by Holyhead, 1689–1692——Great benefit would result to the South of England and the South of Ireland by a communication from the Bristol Channel; if it was put upon a proper footing, it would be a national advantage; respective merits of Waterford and Cork as ports to which an efficient line of packets from Milford should run, 1694–1699——No letters are received in Cork from London, either by way of Milford or Bristol; the only letters received are those from South Wales, 1700–1703.

An arrangement by which the mail from Waterford could be made to arrive at Cork about the time at which the Dublin mail now arrives there, would be no convenience to the merchants, they complain equally of the Dublin letters as of those from Milford; cause of the delay at Waterford, 1705–1707. 1710——Arrangements might be made by which the mails would arrive in Cork in the same number of hours by Milford as by Dublin, 1708–1710——Most certain and speediest mode of communication from London to Cork, supposing steam power to be applied to the best advantage, 1715, 1716——Number of mails from Dublin to Cork; route by which the English mail comes from

England;

Webb, Arthur. (Analysis of his Evidence)—*continued.*

England; delays and irregularities in its arrival; convenience that would be afforded to merchants at Cork if there was a channel of communication by way of Milford as well as by Dublin, 1717–1729.

Welsh Coast. The loss of vessels upon the Welsh coast is larger than upon any other part of Great Britain in proportion to its size, *Tayler* 2277.
See also Bendrick Roads.

West of England and South of Ireland. See *Southern Line of Communication with Ireland.*

West India Letters. Convenience of the Bristol route for West India letters, whether landed at Falmouth or Southampton, *Stow* 436–438——A good number of letters pass between the South of Ireland and the West Indies; chiefly from the counties of Cork and Limerick, *Parsons* 1007, 1008.

Wexford. There is a large trade springing up between Wexford and Liverpool, *Claxton* 29——Wexford is not adapted for a station for mail steam-packets, *Denham* 2195, 2196.

White, Captain *William P.* (Analysis of his Evidence.)—Harbour-master at Cork; has held that office 22 years; previous to being harbour-master had great experience as a seaman in commanding vessels; has circumnavigated the globe, 1172–1176——There are no dangers in entering Cork Harbour after arriving at Bally Cotton Island; distance from Bally Cotton to the harbour, 1177–1179——The harbour can be made in thick and foggy weather by heaving the lead; nature of the soundings, 1180. 1182——Instance in which witness entered the harbour in a steamer in foggy weather, 1183–1187——After passing Roche's Tower, there is no difficulty in getting to an anchorage at Cove or Passage, where there is a pier at which steamers can land their passengers at all times of the tide, 1188–1191——Comparative merits in the situations of Brean Down and Portishead, in the Bristol Channel, as points of embarkation for steamers, 1194–1196——Average length of the voyages of the steamers now plying between Bristol and Cork, 1197–1200——Average estimated rate of iron steam-boats of about 500 or 600 tons, and engines of 250 horse-power, between Brean Down and Cork, 1201, 1202——Difficulties in the navigation to Waterford; nature of the soundings, 1203–1210. 1213, 1214——In the navigation of Cork Harbour, it would be dangerous to attempt to run in unless Roche's Tower was made as a landfall; if the light was seen, any anchorage might be made, 1211, 1212.

Number of steamers that sail from Cork weekly, and their destination, 1216——Vessels from abroad often call at Cork for orders, or to leave their letters there; it is the only port to the westward they ever enter, 1217–1219——There is a very large, increasing business between Cork and that portion of the country lying to the south-west, Limerick, Tralee, and Kerry, 1220——Difficulties and dangers in the navigation of the Bristol Channel; how far those dangers might be avoided by adopting Brean Down as the point of arrival, 1225–1232——Average difference of the voyage as between Bristol and Cork and Waterford, taking Brean Down as the point of departure, 1233——Average number of passengers brought by the Cork vessels, 1234, 1235——From Cork to Bristol is considered the shortest passage, 1236——A Bill has been obtained to make a railway from Cork to Passage; it will be a long time before it is carried into effect; it is a wild scheme, 1238——A favourable passage is more likely to be made against an easterly gale than against a westerly gale; there is always a strong westerly swell in winter time, 1240, 1241——Points in the British Channel at which witness would make the lee of the land with the wind dead ahead, 1243, 1244——The same when off the Irish sea, 1245, 1246——Difficulties in touching at Milford Haven, in bad weather, on the voyage from Brean Down to Cork or Waterford; a straight course could not be made in going to Cork, if Milford were touched at, 1247–1250.

Depth of water over the bar at Waterford; situation of the bar within the harbour, 1251–1256——In gales of wind in the Bristol Channel the tide is often missed, 1257–1261——If a line of packets were established between Bristol and the South of Ireland, the London newspapers might be received in twenty-seven hours, 1265——Distance from Passage to Cork; length of time occupied by the mail-cart in performing its journey between the two places, 1266, 1267——Difference which the tide would make in running down the Bristol Channel, 1269–1274——Facilities afforded for repairs at Cork to vessels putting in there from injury, 1275–1280.

White Oyster Ledge. The White Oyster Ledge is a small patch of foul ground outside the Mumbles Head, which lies twenty-seven feet under water; it is extremely dangerous to deeply loaded vessels, *Denham* 2112, 2113. 2120.

Willcox, Brodie M'Ghie. (Analysis of his Evidence.)—Managing director of the Peninsula and Oriental Steam Navigation Company, 2791——Description of lights used on board the company's vessels, 2792——Their advantages, 2793——A green light is not distinguishable beyond five miles as a green light, but it is as a white light, 2794, 2795——It would be possible to have a law compelling all steam-vessels to carry the same description of lights, and sailing-vessels a white light, 2796, 2797——A vessel of 500 tons and from

Willcox, Brodie M'Ghie. (Analysis of his Evidence)—*continued.*

from 250 to 300 horse power, would in an open sea average 11 nautical miles an hour, 2798–2801——From seven to eight feet depth of water would be sufficient for a mail packet of that description, 2802——A margin of four hours would be sufficient for such a vessel between Brean Down and Waterford, 2803——An iron steam-boat of 300 horse power could cross the bar at Waterford in safety at the lowest spring tides, when the depth of water is 12 or 13 feet, 2804——The increased length of a vessel makes it more unlikely for her to strike, 2805——The mail could be carried in a steam-packet of 300 horse power with considerably greater certainty than in a coach, 2806. 2818——Average speed of the vessels between Liverpool and Kingstown, 2807——Average speed of the company's vessels, 2808——Tonnage, power, average speed and cost of the Lady Mary Wood, 2809. 2815–2817——A vessel of 500 tons and 250 horse power built of iron would cost 25,000 *l.*, 2816——In the passage between Brean Down and Waterford there would not be many passages during the year that would average less than 11 miles an hour, 2819–2821——The mails between Falmouth and Gibraltar have varied only 12 hours twice in two years, 2823. 2826–2831——Vessels would not be more subject to detention in the Bristol Channel, 2825.

Williams, Charles Wye. (Analysis of his Evidence.)—Managing director of the City of Dublin Steam-packet Company, conveying the evening mails between Liverpool and Dublin, 3423–3424——Draught of water of the largest class packets, and depth of the Harbour of Liverpool at low water; inconvenience suffered, 3425–3428——To be safe, a harbour for such steamers should have 15 or 16 feet at low water, 3429, 3430——The shortest sea voyage is desirable in connexion with a railway, 3431, 3432——Liverpool Harbour is not likely to be much improved; state of the Victoria Channel, 3433–3436.

Williams, Henry Peachey. (Analysis of his Evidence.)—Superintendent of the Old Passage Ferry; has known that ferry more than twenty years, 1298, 1299——Rise and fall of the tide there; rate at which it runs, 1300–1302——There is sufficient water for a steamer to cross at all states of the tide, 1303——Time occupied by the steamer in crossing, 1304–1306——Size, tonnage, and power of the steamers employed, 1307–1310. 1314——Number of passages made in the day, 1311——There are no states of the tide when the steamers cannot cross, but there are states of the tide when they cannot land; reason of their being unable to land; manner in which the ferry is crossed when steamers are unable to land, 1312–1318——Delay occasioned to the mail in consequence of not being able to cross with the steamers; inconvenience to, and dissatisfaction of passengers travelling by it; this would be altogether obviated if the ferry could be crossed at all times and states of the tide in a steam-boat, and with proper piers, 1319–1326. 1341–1343. 1434–1438——Number of trips per day that could be made with proper piers, 1327——The neighbourhood and the counties adjoining would derive great convenience from a regular communication, 1332, 1333——Rate of the current at spring tides; longest time the passage would require, 1334, 1335. 1338. 1423, 1424——Scheme proposed for a steam-bridge crossing with a chain, its disadvantages; survey of Mr. Rendell, 1336–1340——Number of piers at the Passage; their length, width and situation with respect to landing, 1344–1349——State of effectiveness of the steam-boats at present employed; description of boat best adapted for the ferry; improvements suggested; estimated cost of a boat on the plan suggested, 1350–1359. 1365–1369——The mail coach is carried across with its luggage unloaded, and is taken out on the opposite side; much time is saved by this plan, 1360–1364.

Average length of time that would be occupied in crossing, supposing the ferry to be rendered as perfect as suggested, 1371——Average length of time during the 12 hours that the steamers cannot ply owing to the defects in the present piers and approaches, 1374——If these defects were removed, the sailing-boats might be dispensed with, and the ferry worked with steamers, 1375, 1376——The expenses would be considerably increased by having two steamers constantly at work; the economy of time, and the saving of boats' crews' wages, would not compensate for the increased expense, 1377–1382——Increase per cent. in the communication that would take place if the steamers plied regularly, and the accommodation was better, 1384——Effect of the improvements proposed with respect to night crossing, 1386–1389——Circumstances under which the ferry is held by the present proprietors; amount laid out by them on the piers; establishment maintained; average annual receipt and expenditure for the last five years, 1390–1397——In consequence of the bad state of the piers, and the insufficiency of the packets, a great number of people object to cross; number of mails and stage coaches now crossing daily, 1398, 1399. 1425–1427——Supposing the Irish letters to go by steamers direct to Bristol or from Brean Down, the mails which now cross the Passage must still be kept on for the circulation of letters in that part of the country, 1400——Particulars of traffic at the Old Passage ferry for five years ending 24th June 1841, *Ev. p.* 69——Names of the present owner and lessees of the ferry, 1404–1407——The proprietors have a contract with the Post-office for the conveyance of the mails across the ferry; sum allowed by the Post-office; number of mails conveyed on each day, 1408–1410.

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Williams, Henry Peachey. (Analysis of his Evidence)—*continued.*

Cost of the establishment at the New Passage before the removal of the mails, 1411——If proper places of landing were made it would repay the outlay of making the piers, 1414——Amount for which the ferry could be put in a proper condition, 1417, 1418——Witness does not consider the ferry dangerous in any way, 1419–1422——Passengers are deterred from going to Milford by the mail in consequence of being subjected to crossing occasionally in an open boat; it is provided in the contract with the Post-office that the mail should be conveyed in a steamer at all times, when practicable; number of times the down and up mail crossed in the steamer and in an open boat; in bad weather, when the steamer is most required, it cannot be used, 1430–1436——If the improvements proposed were made, the ferry might be crossed at all times of the tide, and it would become the great line of communication to the Great Western Railway, 1437–1441——The mail used to be crossed at the New Passage; reason of its removal to the Old Passage; difference of distance in going by the New or the Old Passages from Bristol to Milford, 1442–1444——The accommodation furnished to the Post-office is capable of improvement if the allowance was increased; amount of the present allowance per day; average time occupied from the arrival of the mail on one side to its departure on the opposite side, 1445–1450——There are no stated times for the crossing of the boats; arrangement made, 1451–1456.

Williams, Josiah. (Analysis of his Evidence.)—One of a deputation from the corporation of Waterford to urge the necessity of a southern packet line between England and Ireland, 3818——Great importance of a southern line of communication between England and Ireland, 3819——Great inconvenience would be sustained if all the southern correspondence were sent by way of Dublin, 3820–3823——Extensive trade between the South of Ireland and the South and West of England and South Wales, 3824–3827——Many passengers now go by way of Dublin who would take the southern line, if steamers ran every day, 3828–3832——Passengers would prefer the route by Brean Down to that by Milford; causes of this preference, 3833–3838——Nature of the mercantile traffic between Waterford and Milford, 3839–3841——The Milford packets use Scotch coal; saving that would arise from the use of Welsh coal, 3842–3846.

Small number of passengers by way of Milford; bad accommodation of the packets, 3847–3849——Relative importance of the trade of Waterford with different parts of England, especially the North and the South, and the South-west, 3850–3853——The acceleration of the northern mail; six hours would not compensate for the surrender of the southern line of communication, 3854——It is the received opinion that the shorter the sea voyage, and the longer the land journey, especially with a railway, is best for speed and regularity, 3855. 3859——As regards the South and West of England, the longer sea voyage, by Brean Down, would ensure greater facility of communication than by Holyhead and Dublin, 3868——Trade of Swansea, Cardiff, and places to the westward of Newport, with Ireland; effect of discontinuing the Milford mail upon the interests of those districts, 3864. 3867.

Effective steamers from Hobb's Point, to arrive at Waterford at six in the morning, would be a great convenience, 3868. 3871——Advantages of the route by Brean Down, 3871——Class of steamers fit for running between Hobb's Point and Waterford; they could enter the harbour at all times of the tide, and in the dark, 3872–3877——Fifty or 60 times in the course of the year the Dublin mail reaches Waterford without the English letters, 3878. 3881——In writing to South Wales, witness always sends his letters by way of Milford, 3882–3886——It would be convenient to Cork, Limerick, and the inland towns, if the mail reached Waterford at night; but six in the morning is early enough for Waterford and its vicinity, 3887.

Winds. A wind a-beam is the worst for steamers, *Claxton* 64.

Wrecks. Losses of steamers in the Bristol and Irish Channels within the last 12 years, *Claxton* 25.

See also *Bristol Channel,* 1. *City of Bristol (Steamer).* *Frolic (Steamer).* *Welsh Coast.*

Y.

Youghal. Route by which the Youghal letters are received from England, *Kendrick* 2579.